An Address
ON
THE PHYSIOLOGY AND PATHOLOGY OF WORK IN COMPRESSED AIR.

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MR. PRESIDENT AND GENTLEMEN,—When through your honorary secretary the invitation of the council of the society was conveyed to me to give the annual address I was for the moment taken aback, for I felt that this honour which has hitherto been given only to distinguished members of our profession from a distance was being offered to one of yourselves who was not so well known in the medical world and who was contented quietly to proceed upon the narrow path which he had tracked for himself. Conscious of your desire to pay me a compliment and in this way to recognise the honour which the King has conferred upon me, I am much touched by the kindheartedness and thoughtfulness which led to your invitation, and I am deeply grateful to you for it. The acceptance of the task of giving the annual address I have found easier than the fulfilment of it, for owing to the shortness of time at my disposal and the little leisure at my command I am unable to take up a subject that might have been more useful to you in your practice as medical men and therefore in keeping with the objects of the Clinical Society; still, in placing caisson disease before you the opportunity is afforded me of drawing your attention to an interesting malady—one which in this restless age of bridge-building and tunnelling under rivers to shorten distance and to facilitate traffic may yet become, if care is not taken, more frequent than it has ever yet been.

My experience of compressed-air illness has been entirely gained in this neighbourhood during structural alterations on the Redheugh Bridge, the building of King Edward VII. Bridge, and the tunnelling operations which are at present proceeding under the River Tyne between Wallsend and Hebburn. It took four years to build King Edward VII. Bridge. In order to support the enormous weight which the bridge is obliged to carry the piers had to be large, and as these had to rest upon a secure and solid foundation it was necessary to excavate the soil in the bed of the river to the depth of 70 feet below high-water level mark. In their excavations the workmen passed through strata of silt, gravel, clay, soft coal, &c. The caissons successively in use were large, as may be inferred from the fact that 35 men worked in each caisson at one time. The working chambers measured 113 feet in length, 35 feet in width, and 9 feet 6 inches in height, and had a cubic capacity of 23,142 feet. The total number of men employed in caisson work was 150 and the total number of days spent in this kind of work was 267. 48 men worked under air pressure through the three caissons from start to finish without being affected; 29 men worked through two caissons, or 180 days, and remained in good health; and 49 men through one caisson, or 90 days, without symptoms. No man over 40 years of age was allowed to work in compressed air; 4 per cent. of the men applying for work were rejected at the primary medical examination, while 31 men partly through fear and partly through muscular pains gave up this work within a fortnight. The largest number of cases of compressed-air illness occurred when the pressure employed varied between 24 and 32 pounds and principally during the months of September and October. No case occurred under 20 pounds pressure but there was one case of "bends" at 22 pounds pressure. The largest number of men employed in building the bridge in any day was 750.

To understand what is meant by compressed-air illness a brief description of a caisson is necessary. A caisson when in position is in its simplest form an iron cylinder, somewhat bell-shaped at its lower extremity and closed at its upper by a sliding door which forms the ceiling of the chamber where the men work and which separates it from the material-lock or the chamber through which the buckets filled with soil escape through the sliding doors that constitute the roof of the caisson. Leading out of the upper part of the caisson at its side, just underneath the ceiling referred to, is an iron door, which, when open, allows of entrance into a smaller chamber called the "air-lock" and through which the men gain entrance into and emerge from the working chamber proper. If a caisson is large it may have two or three shafts or cylinders leading into it. It is not necessary to have the material-lock on the same cylinder as the air-lock. In Amsterdam I found the soil was removed through a material-lock on a different shaft from that by which the men entered and left the working chamber. This is known as the Zschokké lock and is worked automatically. On the Tyne all the caissons had three shafts each with its own air- and material-locks. When placed in position on the bed of a river a caisson, being a pneumatic chamber, would float were it not for the large amount of concrete superimposed upon it. Air under pressure is pumped into the chamber to keep the water out and to allow the men to work therein. The surplus air escapes by the cutting edge of the bell-shaped expansion and by this means ventilation is secured. In making tunnels the caissons are constructed in rather a different manner, since the line of procedure is not vertical but horizontal. Caissons have to be strongly built so as to withstand enormous air pressures. When the necessary depth has been attained and further sinking is unnecessary the caissons are filled internally with concrete and they thus become the foundations upon which the piers of a bridge are built and the superstructures reared.

COMPRESSION AND DECOMPRESSION.

When men are passing into compressed air for the first time they often experience unpleasant sensations. Many become nervous and they are conscious of their heart beating a little more quickly. Others, again, experience a considerable amount of discomfort which gradually increases to severe pain in the ears owing to the membranum tympani being forcibly driven inwards. This occurs when there is a deficiency of air in the middle ear either as the result of the Eustachian tube not being patent enough or as a consequence of naso-pharyngeal catarrh. The tympanum has been known to rupture, and as the blood-vessels in the middle ear are dilated hæmorrhage has occurred, leaving a temporary or permanent injury behind in the organ of hearing. Workmen who are in the habit of passing through the air-locks can by a peculiar method of swallowing carry air up the Eustachian tube and by thus equalising the pressure on either side of the tympanum escape the pain and unpleasant sensations which are experienced by the men who are new to the work. In my experiments upon animals, although most of them seemed to bear rapid compression quite well and to be uninfluenced by it, others would fall upon their side and become convulsed, symptoms which disappeared as the pressure went on rising and from which they entirely recovered by remaining in the compressed air. Since it is the men who are about to work in compressed air for the first time who are most likely to suffer pain and discomfort in the ears, and there will always be some men who will never be able to bear compressed air well, there ought to be some means inside the air-lock whereby those inside can communicate with the man in charge of the pipes outside so that the pressure may be reduced on the supervention of symptoms, since these may become almost unbearable and if not relieved lead to serious harm, although in my own experiments animals that were convulsed improved with a rising pressure. It is well to raise the pressure slowly, for by this means the men become accustomed to the changing conditions, and they are less likely to suffer in the manner indicated.

When the pressure inside the air-lock has come to equal that inside the cylinder the inner door is pushed open and the men pass into the caisson and descend the ladder to the bottom of the shaft. Here they work for a few hours. Since it is necessary that the air inside the caisson shall be kept as pure as possible an excess of air must be pumped in and care must be taken that it is not fouled by the products of combustion of naked lights. The electric light is preferable to lamps and candles. The surplus of air escapes by the free edges of the caisson. Free ventilation keeps the air in the interior of the caisson cool. As there is a danger of the air coming from the compressor engine becoming too hot the cylinder should be covered by a water jacket in which

cold water is kept circulating. It is most unusual for men to become ill when working inside a caisson; most fortunately, too, very few accidents occur inside.

After three or four hours' work the men leave the caisson and in passing out through the air-lock they undergo what is called "decompression." It is occasionally during, but mostly after, decompression that symptoms of compressed-air illness show themselves. Having entered the air-lock and closed behind them the door leading into the caisson, the pressure in the air-lock is for a brief period the same as that under which they have been working, but by opening a valve on the outside of the air-lock the man in charge allows air to escape into the external atmosphere, and when the pressure inside the air-lock has come to equal that of the external air the door can readily be opened and the men emerge enveloped in a thick cloud of white mist.

LENGTH OF SHIFT.

The length of time spent by the men in the working chamber should be inversely proportional to the pressure. As excavation of the bed of a river proceeds and the caisson sinks the pressure inside has to be correspondingly raised and the duration of the working period necessarily shortened. At King Edward VII. Bridge there were two shifts, one for the day and another for the night. When the pressure was 25 pounds the men worked 10¼ hours—namely, from 6 A.M. to 8.30 A.M., 2½ hours; from 9.15 A.M. to 1 P.M., 3¾ hours; and from 2 P.M. to 6 P.M., 4 hours; but as the caisson sank and the pressure rose to 35 pounds the number of hours worked per day was shortened. Four hours was the longest time spent in a caisson and the greatest depth attained was 70 feet below high-water level mark. On tidal rivers the pressure keeps rising and falling with the tide. In some of the American tunnels the men were allowed to work only one hour at a stretch when the pressure was 50 pounds. In Amsterdam I found the men working at a depth of 66 feet below the surface and under a pressure of 30 pounds. These men worked four hours at a stretch, came out for eight hours, and returned to work for other four hours, making an eight-hour day. Although in Holland the intervals between the shifts were unusually long compared with those on the river Tyne there were just as many cases of the minor forms of compressed-air illness among the Dutchmen as among the men on the Tyne.

Although one of my own patients became ill in the air-lock when undergoing decompression, it is generally after the men come out of the air lock that symptoms develop. As a rule the men come out feeling quite well. It may be before they leave the works, when they are proceeding homewards, have reached home and gone to bed, or are partaking of a meal, that men all at once complain of severe pains in their limbs or abdomen. Some are sick and vomit; others become dizzy and in trying to walk fall owing to sudden loss of power in their lower extremities; others, again, have a bleeding from the nose or mouth or are the subjects of a degree of nervousness often amounting to terror. In the worst forms there is unconsciousness. Occasionally the symptoms resemble hysteria or there is intense excitement which goes on to frenzy. The most common symptoms are muscular pains known as "bends," or there is loss of power in the lower extremities attended by retention of urine and requiring the use of the catheter. Fortunately, in most instances the paralysis of the limbs passes away in a few days, but occasionally it lasts for months with all the physical signs of a limited myelitis. In one of my own cases the paralysis which was accompanied by loss of sensation became permanent, bed-sores formed, and the patient succumbed to septicæmia and tuberculosis.

TO WHAT ARE THE SYMPTOMS DUE?

Men inside a caisson are working under abnormal conditions. They are under a higher atmospheric pressure than when at the surface. The work, too, is hard, since it is all manual labour; hence the necessity of pumping into the caisson a superabundance of air drawn from an uncontaminated source. Although the air supplied may be pure it may become fouled inside the caisson by gases evolved from the strata during the process of excavation. It was when passing through a thin stratum of soft mushy coal on the River Tyne that unpleasant odours were complained of by the men and several of them became ill. At this particular time the men were not working under high atmospheric pressure, so that probably the air had become impure by H_2S or CO, and this circumstance contributed to their becoming ill. High pressure, while an important factor in caisson disease, is not the only factor. At Greenwich, for example, out of nine cases of compressed-air illness three occurred in men who were working in a pressure of only 12 pounds, and at the Blackwall Tunnel men also became ill under remarkably low pressures. The worst and only fatal case which I had was that of a man who had been in a pressure of 25 pounds for four and a half hours and who was decompressed in three minutes. The length of exposure to the pressure and the purity of the air breathed have to be considered as well as the amount of pressure. Although opinions differ, yet the influence of the purity of the air breathed cannot be altogether ignored when viewed in the light of Snell's experience at the Blackwall Tunnel. When the amount of air supplied was 4000 cubic feet per man per hour there were 28 cases of compressed-air illness in 100 days, but when 12,000 cubic feet of air were supplied the cases fell to zero. Copperthwaite maintains that the number of cases of compressed-air illness is proportional to the amount of carbonic acid in the air breathed and that when the CO_2 reaches 1 per cent. illness may be expected. Although the greater the amount of air supplied per man the less likely it is to contain impurities, yet at the Brooklyn Bridge, New York, while 1400 cubic feet were supplied per man per hour the air in the caissons frequently contained 0·3 per cent. of CO_2. On the River Tyne 1320 cubic feet of air were supplied and the average amount of CO_2 present was 0·2 per cent.

The larger the number of men working in a caisson the greater should be the amount of air introduced in a given time. Now and again it happens that a caisson suddenly sinks on to a clay bed and the surplus air can no longer escape as heretofore by the free edge of the caisson. As air under compression is still being pumped into the caisson this chamber would probably rupture were it not for the fact that both at the upper part of the shaft and on the compressor engine itself there are safety valves which act automatically when the pressure inside the caisson reaches a little higher than the maximum pressure the men have been working at on any particular day. In tunnelling operations where the line of procedure is not vertical but horizontal when gravel is reached there is often a very free escape of air, so that in order to keep up the pressure enormous quantities of air have to be pumped in, say 4000 to 8000 cubic feet per hour—a large amount compared with the 1320 on the River Tyne but yet small when compared with 13,000 cubic feet occasionally required at the Baker-street and Waterloo tunnel. At the Baker-street tunnel sometimes the amounts of air sent in were only 1300 and 2000 cubic feet and it is interesting to know that when the freest ventilation prevailed there were eight cases of compressed-air illness in one month and when the worst conditions prevailed there were 13 cases in 12 days. In passing through the clay soil the amount of CO_2 in the London tunnels frequently rose to 0·1 per cent., whereas with a gravel face the percentage varied between 0·05 and 0·07. In making the Hudson tunnel, New York, the CO_2 occasionally rose to 2 per cent., or 20 parts per 1000 of air, and the men died at the rate of 25 per cent. per annum. Although at first sight it would appear as if at the Hudson Tunnel the large percentage of illness was due to the amount of CO_2 present in the air, yet it cannot be said that CO_2 is the cause of compressed-air illness, since in London it was found that it was not when the men were working at a clay face and the percentage of CO_2 was highest that the amount of sickness was always greatest, nor on the River Tyne did there appear to be any close relation between the amount of illness and CO_2 in the air.

In all industrial occupations experience has shown that the freer the air is from CO_2 the larger is the amount of work done by the men and the less is their sense of fatigue. Opinions differ as to the harmful effects of this gas upon workmen. At the Brooklyn Bridge the men suffered when the CO_2 in the air reached 0·3 per cent., and Copperthwaite tells us that when the CO_2 rises to 1 per cent. illness may be expected. Owing to the comparatively small size of my compressed air chamber I have not had the opportunity of trying experiments upon animals larger than dogs. I have, however, been struck by the results obtained when mice, rats, and dogs have been exposed to varying percentages of carbonic acid and carbon monoxide. According to Copperthwaite 1 per cent. of CO_2 is regarded as dangerous,

and yet I have exposed a dog for two hours under a pressure of 25 pounds in an atmosphere containing 3·4 per cent. of CO_2 and 0·6 per cent. of CO and decompressed the animal in 35 seconds without the slightest harm resulting; also to 3 per cent. of CO_2 for two hours and decompressed in 25 seconds and yet the animal suffered no inconvenience. The same dog was in compressed air containing 2·26 per cent. of CO_2 for seven hours and under 50 pounds pressure and developed no symptoms after decompression, while a rat after exposure to 0·62 per cent. of CO_2 atmosphere for seven hours under 50 pounds pressure and gradually decompressed was found dead on the following day.

Carbon monoxide is a deadly poison and yet by degrees animals seem to become acclimatised to it. I got a dog to become capable of breathing under 50 pounds pressure an atmosphere containing 0·3, 0·4, 0·57, 0·8, 0·95, and 1·6 percentages of CO for from eight hours with the smaller quantities to two hours with the larger percentages and to be decompressed in the last instance in three-quarters of a minute without suffering. The question of the acclimatisation of man and animals to CO is very important from the point of view of the work of the coal miner and rescue work after colliery explosions.

Sulphuretted hydrogen is also a very poisonous gas but I found that traces could be borne for four hours—0·005 per cent. for one hour, 0·019 and 0·02 also for one hour, without any mishap, but that 0·2 per cent. was fatal. For assistance in these gas analyses I am indebted to my colleague Mr. Frank Howson.

Without oxygen mammalian life cannot be maintained and yet under certain circumstances oxygen is a poison. The exposure of animals to high atmospheric pressures of oxygen is dangerous. In exposing mice to 10 atmospheres of oxygen the breathing after a short time becomes rapid, the animals become comatose, and they die in convulsions before decompression is effected. Now since animals exposed to the same pressure of ordinary atmospheric air did not exhibit in the caisson any symptoms at all, the presumption naturally is that the oxygen acted as a poison. Exposures of animals to high pressures of ordinary atmospheric air and to oxygen are not exactly the same. Oxygen is a protoplasmic poison: it lessens respiratory exchange and induces convulsions. Professor J. Lorrain Smith of Manchester University found that "exposure of animals to a tension of 170 to 180 per cent. atmosphere of oxygen causes in a short time diminution in the power of the lungs to absorb oxygen actively and that with a continuance of the exposure the arterial oxygen falls till it reaches the level for which mere diffusion of oxygen from the alveolar air might account." This effect is largely due to the fact that oxygen has an irritating effect upon the lungs and produces first congestion of these organs and subsequently hæmorrhagic consolidation of them. The lungs become hepatised as in pneumonia. Finding that very high pressures of oxygen atmospheres caused death by inducing pneumonia, Lorrain Smith is of the opinion that inflammation of the lungs is a cause of caisson disease, but as we have already seen this can scarcely be the cause, for the symptoms of compressed-air illness are not on the side of the respiratory organs but in the neuro-muscular system.

PHYSIOLOGY OF CAISSON WORK.

When a gas and a liquid are brought into contact with each other the liquid takes up the gas in solution and this absorption will continue until the liquid saturated with gas ceases to take up more. No chemical compound is necessarily formed as a consequence of this union. The amount of gas in solution depends upon the solubility of the gas, the temperature of the liquid, and the amount of pressure. The amount absorbed varies directly with the pressure in accordance with Dalton's law. When men are working in compressed air their blood will take up a larger amount of nitrogen and of oxygen in simple solution than at atmospheric pressure. Since the oxygen of the inspired air mostly enters into loose chemical combination with the hæmoglobin of the blood corpuscles there will be only a small amount of oxygen taken up by the liquid part of the blood and what is taken up will probably quickly disappear in the tissues. The amount of carbonic acid normally present in the alveolar air of the lungs at ordinary pressure is about 5·6 per cent. Dr. John S. Haldane, whose work on this subject is of the greatest value, maintains that in a caisson the "compressed air makes no difference as regards the solution of CO_2 in the blood, since unless the air breathed is foul the presence of CO_2 in the lung air is kept constant by the breathing whatever the total atmospheric pressure may be"—that is to say, that any slight excess of CO_2 will stimulate the respiratory centre, quicken and deepen the breathing, and thus get rid of the excess of CO_2. Experience, on the other hand, shows us that asphyxia by CO_2 does occur either by accumulation of CO_2 in the blood or through a deficiency of oxygen. It is different with nitrogen which forms 79 per cent. of ordinary atmospheric air. This gas does not enter into chemical combination with the blood. In compressed air larger quantities are taken up by the liquor sanguinis, and as the nitrogen-saturated blood circulates through the body the tissues in time also become saturated with the gas. Each time the right ventricle contracts the blood which is sent to the lungs becomes saturated to the same pressure of nitrogen as that of the nitrogen in the alveolar air. The arterial blood will part with this nitrogen to the tissues, so that the venous blood returning to the right side of the heart will contain less nitrogen and be again ready to take up more gas in passing through the lungs, but the amount of nitrogen taken up will gradually get less and less with each systole as saturation takes place and the pressure of nitrogen in the blood and tissues becomes equal to that in the alveolar air. Haldane has given a vivid description of the saturation of the blood and tissues by nitrogen. The gas in solution in the blood exerts the same pressure as that exerted by the gas in contact with the blood, and when the external pressure falls, as during and after the decompression of a workman in the air-lock, the gas in solution again assumes the gaseous state and appears in the form of bubbles in the blood and tissues. The parts of the body which have a rapid circulation become more rapidly saturated than those with a feeble circulation, and as they become more quickly saturated they will also the more quickly desaturate. It has been known for long that stout men do not bear work in compressed air well. The explanation is apparent. Mr. E. Ramsbottom, my former colleague in the Physiological Laboratory, and myself found that fat absorbed under pressure a large quantity of air. The fat of the human body is capable of retaining a much larger quantity of nitrogen than blood, hence the part played by obesity in the compressed-air illness of caissoniers.

At King Edward VII. Bridge the men worked in pressures up to 35 pounds, but in some places work has been done in 67 pounds pressure, equivalent to 4·45 atmospheres. Experimentally higher pressures have been borne. Leonard Hill exposed himself to a pressure of 75 pounds and Greenwood to 92 pounds. Greenwood was in the compressed air chamber for 54 minutes, and although 2 hours and 17 minutes were spent in decompression he experienced severe pains 30 minutes after leaving the compressed-air chamber. Paul Bert exposed dogs to 10 atmospheres of ordinary air for a lengthened period and decompressed them slowly without any bad effects.

In the discussion which followed the reading of my paper on the Use of Caissons in Bridge Building at the Society of Arts on May 11th, 1906, Mr. E. W. Moir, of Messrs. Pearson and Son, contractors for the Admiralty Pier at Dover, the Hudson Tunnel, New York, and other large engineering undertakings, gave interesting data in regard to the length of time animals could remain under high pressure without any bad effects. At the old Hudson Tunnel the mules remained underground under pressure for 12 months. All that time they appeared to be quite comfortable; they were frisky and they worked eight hours shifts. After being in compressed air for over a year the contractors, wishing to bring them to the surface, gave each of the mules a bottle of whisky and applied mustard jackets over such parts of their bodies as they thought might possibly become affected. The mules were brought out very slowly, half a day being spent in decompression. The animals were no worse for their long immersion, for when sold they realised excellent prices.

PATHOLOGY OF CAISSON DISEASE.

Two years ago Dr. Alfred Parkin, assistant physician to the Royal Victoria Infirmary, and myself carried out a series of experiments upon pithed frogs in compressed air. I gladly take this opportunity of publicly expressing to Dr. Parkin my sense of indebtedness for the generous help he then rendered me and of the assistance which I have received from his thesis on "Compressed Air." We subjected frogs to extremely

high pressures and after a time suddenly decompressed some of them. The web of a frog's foot was drawn over the inside of the glass window of the compressed-air chamber and by means of the microscope and electric light illumination we could watch the circulation of the blood in the frog's capillaries. During compression the circulation proceeded quite naturally, but after sudden decompression, while the circulation seemed to go on apparently unchanged, by degrees the rate of the blood flow diminished and gradually ceased preceded by a slight to-and-fro movement. All at once a bubble or two of air would appear in the capillaries and these running together formed a large embolus inside the vessel. Occasionally air bubbles appeared in the tissues external to the blood-vessels and were due sometimes to rupture of the capillaries or to desaturation of the tissues. It is the presence of gaseous emboli in blood-vessels, the accompanying stagnation of the circulation, and the occasional rupture of small blood-vessels with hæmorrhage which are the pathological lesions present in most cases of compressed-air illness. It is the bubbles of nitrogen gas in the small blood-vessels of the brain and medulla and the presence of air spaces in the cerebral tissue which explain the sudden death of divers and caisson workers after decompression; also the presence of similar lesions in the lower part of the spinal cord which explains the paralysis of the lower limbs and when present in the muscles and around the joints the severe pains known as "bends." In opening the bodies of frogs, mice, and rats which had died shortly after decompression bubbles of air can be seen escaping from the heart when that organ is cut into, also from the liver and the subcutaneous tissues. The bubbling of gas in the blood and tissues of the body after sudden decompression is aptly compared with the effervescence which occurs in a bottle of soda-water on removal of the cork and in a word is the pathology of caisson disease.

Apart from the dangers incidental to rapid decompression caisson workers are exposed to other risks—e.g., (*a*) accidents occurring inside the caisson during the ordinary work therein—fortunately such accidents are extremely rare; (*b*) the breathing of an atmosphere polluted by CO_2, CO, or H_2S; (*c*) sudden inrush of water into a caisson owing to an untimely manipulation of the doors of the locks; and (*d*) sudden rupture of a caisson. The first two of these risks have been already dealt with, but the possibility of a sudden inrush of water calls for a few remarks. During the building of a pier at Havre in September, 1905, one door leading into a caisson was opened at the wrong time. As a result of the sudden fall of pressure water rushed into the caisson and drowned one of the workmen. The other men only escaped with difficulty. The possibility of an accident such as this can only be obviated by having competent and reliable men in charge of the locks.

Another danger is sudden rupture or explosion of a caisson. This occurred a few months ago at Hebburn where after the men had been working for nearly two hours in a pressure of 30 pounds the caisson suddenly burst. The four men inside were immediately decompressed—one man who was at the bottom of the shaft was killed by falling timber, broken iron plates, and débris, but the other three, although injured about the head and limbs, in no way suffered as a consequence of the immediate decompression. The accident occurred about the breakfast hour. In conjunction with Dr. N. Maclay of Wallsend I visited the scene of the explosion in the afternoon. On the following day, along with Dr. D. W. Inglis of Hebburn, I visited the injured men in the Hebburn Infirmary, but although all were bruised as the result of the physical injuries they received, not one of the men, either then or subsequently, was anything the worse for the instantaneous decompression. It might be argued that the length of time spent by the men that morning in the caisson was too short for a considerable amount of gas to have passed into solution, but although the figures given are approximate Haldane states that in one hour the various parts of the body become saturated with nitrogen to the extent of 70 per cent. and in two hours to 92 per cent. The fact remains that three men were instantaneously decompressed and not one of them developed symptoms of compressed-air illness. It is difficult to say why no serious symptoms followed.

PREVENTION.

Believing that the cause of caisson disease is the liberation of bubbles of gas in the blood-vessels and in the tissues and that slow decompression by giving time allows the dissolved nitrogen gradually to escape through the vessels of the lungs into the alveolar air, physiologists have recommended that decompression should be slowly performed, also that the time spent in the act should be directly proportional to the amount of pressure and the length of the exposure to it. Compression also should not be quickly hurried over. One minute for every 5 pounds of pressure or three minutes for each atmosphere formed the minimum time spent in the air-locks at the King Edward VII. Bridge for decompression, a short time compared with the 40 minutes required of the workmen in Amsterdam exposed to only two atmospheres of pressure. Hill and Macleod recommend when men have been exposed to 2 atmospheres, or 30 pounds pressure, 30 minutes to one hour to be spent in decompression, and for 3 to 4 atmospheres—i.e., 45 to 60 pounds pressure, one to two hours for decompression. My feeling is that it would be almost impossible to get the British workman to submit to spending this length of time in decompression, and no wonder, for during decompression the temperature inside the air-lock falls several degrees and the men perspiring and fatigued with their work are apt to become chilled unless they have been supplied with blanket rugs. Besides, it is well known that the workmen prefer to run all sorts of risks than endure the *ennui* of slow decompression. Some boast of having come regularly out of the caisson through the mud-lock, quickly decompressed, without experiencing the slightest inconvenience, but this circumstance must not be taken as a recommendation for the adoption of a procedure which both experience and experiment show to be extremely dangerous.

The irksomeness of slow decompression can to some extent be overcome by "stage" decompression on the lines indicated by Haldane. He recommends as being within the limits of safety rapid decompression from a high to a moderate pressure and this to be followed by slow decompression for the remainder of the pressure. It is possible to decompress from 6 to 3 atmospheres, from 4 to 2 atmospheres, or from 2 to 1 suddenly and then to decompress slowly during the remainder. "The danger of rapid decompression," Haldane says, "depends not on the absolute difference between the initial and final pressures but on the proportion between the two pressures. If this proportion is only 2 or 2·3 to 1 the decompression is safe; if, on the other hand, the proportion is 3 or 4 to 1 the decompression is dangerous." It is towards the end and not in the early stages of decompression that the danger reaches its maximum; hence the pressure may be suddenly reduced one-half provided the remainder of the decompression is slow. This method of decompression would certainly expedite the transmission of the men through the air-lock and would shorten the time spent in decompression.

If there is one occupation which should be followed only by comparatively young men, and one in regard to which previous medical examination of the workmen is necessary, it is work in compressed air. In medicine it frequently happens that experience is in advance of explanation. It has been known that the men who suffer least are those who are between 20 and 30 years of age, who are temperate and of spare build, and whose tissues are still elastic. Stout, flabby men do not bear caisson work well, the reason being, as Vernon found, that fat not only takes up six times more nitrogen than most of the other tissues and fluids of the body but it saturates and desaturates more slowly.

TREATMENT.

Since compressed-air illness is due to the presence of bubbles of air in the blood and tissues both Mr. W. E. Moir of Messrs. Pearson and Son and Dr. Andrew Smith of New York suggested that on the appearance of symptoms the workman should be placed in an air-lock and again compressed. It has been shown experimentally that during recompression the bubbles of air disappear and that if the second decompression be slowly effected the symptoms may not reappear. Recompression most certainly gives rapid relief to the "bends" or muscular pains complained of by the men. There should be no large working in compressed air undertaken without there being close at hand a medical air-lock, large enough for one or two men to lie down in, suitably heated and lighted. I can bear testimony to the efficacy of recompression, even in cases where minor degrees of muscular paralysis had appeared. At the Hudson Tunnel

it was found that after the introduction of the recompression chamber the death-rate among the workmen fell from 25 to 1½ per cent. per annum. To get the best results the men should be placed in the immersion chamber as early as possible after the development of symptoms. In many instances symptoms do not recur after recompression; in other instances relief may or may not be obtained.

The following is an interesting experience of recompression given to me by a patient under my care in the Royal Victoria Infirmary. On the morning of August 6th, 1908, a sinker, aged 25 years, went to work at 6 o'clock and remained under 30 pounds pressure until 9 o'clock. After coming out of the air-lock he felt pains in his back and fainted; he was carried into the medical lock and recompressed in a pressure of 20 pounds. At 10 A.M. he had recovered and preferred to go back to work in the caisson where he remained until 1 P.M., feeling quite well and doing his work as well as the other men. He had hardly left the air-lock a second time when he was seized with pains in his arms and elbows and was placed in the recompression chamber at a pressure of 30 pounds. After being there for half an hour and feeling relieved the pressure was lowered to 24 pounds, but as the pains returned the pressure was again raised and he remained in the chamber until 6.15 P.M., when he came out free from pain. He left the works and was proceeding homewards when he was seized with pains in the right arm, but he went home, had tea, went out for a short walk, and afterwards went to bed. The pains by this time had become so severe that he could not sleep. He got up and going back to the works he re-entered the medical lock at 10 P.M., where he stayed until 5 o'clock on the Saturday morning. He slept for four hours in the medical lock and on coming out of the lock was all right, but severe pains developing in his knees he again entered the medical lock at 5.45 A.M. and stayed there until 8.45 A.M. in a pressure of 26 pounds. Shortly after leaving the recompression chamber the pains returned, and as these were severe Dr. Maclay gave him a hypodermic injection of morphine and sent him into the infirmary at Newcastle. The patient, who was a well-developed man, had previously worked under 25 pound pressures in Dublin for six months and in Glasgow for four months under lower pressures without suffering. When admitted into the infirmary he was still in such pain in the knees and elbows that he had to have another injection of morphine. There could be felt distinct creaking in the skin over the left knee as in emphysema. By degrees the pains lessened and ultimately disappeared. The temperatures for the three evenings after his admission were 100° F., 100·4°, and 99·8°. The sounds of the heart which were normal were distant and not at all easily heard.

When recompression cannot be carried out—as, for example, when the symptoms come on long after a man has left the works—he should be put to bed, kept warm, and if in great pain a hypodermic injection of morphine may be administered. In many of these cases, even although there is no paralysis of the limbs, there is frequently a paralytic condition of the bladder attended by retention of urine and calling for the use of the catheter. Muscular paralysis, loss of sensation, bed-sores, and complications must be treated on ordinary lines.

Since the risks to life from rupture of a caisson are enormous, the greatest care should be taken to prevent such an accident. Whether the shifting of the surface of the river's bank towards the Tyne at Hebburn on account of the excessive dredging of the river so pressed upon the caisson and cracked it, or whether there had occurred a sudden lowering of pressure followed by a jerk of the caisson which broke its attachments, it is difficult to say, but engineers are agreed that caissons should be made of strong steel or of wrought-iron plates and not of cast iron, and that these chambers should be made of such strength as to bear two or three times greater pressure than is ever likely to be required of them.

ROYAL SOCIETY OF ARTS: SWINEY PRIZE.—A meeting of the adjudicators of the Swiney Prize was held at the Royal Society of Arts on Jan. 20th, when, on the motion of the Lord Chief Justice, seconded by Sir R. Douglas Powell, the prize was awarded to Dr. Charles A. Mercier for his work, "Criminal Responsibility."

"BACILLUS F": AN ORGANISM OBTAINED IN A CASE OF EPIDEMIC DIARRHŒA.

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IN the summer of 1907 it was decided to admit cases of epidemic diarrhœa into the Liverpool City Hospital at Fazakerley. The number of cases which came under observation was relatively small owing to the wetness of the season, but from one of them, a case presenting all the clinical features of the disease, the organism which is the subject of this paper was obtained. For convenience we have called it "Bacillus F."

A review of the many unsatisfactory attempts to isolate a specific organism from the fæces led us to adopt the method of blood culture—the more so as this has proved useful in other diseases. Seven cases were investigated, six of them during life. In these about four cubic centimetres of blood, or as much as was available, were received directly from a vein in the forearm into a syringe containing an equal amount of a sterile solution of 1 per cent. citrate of sodium in 0·75 per cent. saline solution. The mixture was immediately inoculated into ascitic fluid broth, ox-bile, milk, blood serum, agar and MacConkey tubes, and incubated at 35° C. The blood obtained from five of the cases proved sterile in all media. The sixth showed a short motile bacillus in one ascitic fluid broth tube; unfortunately, this organism died out in spite of frequent subculture before we had time to investigate it thoroughly. In the seventh case, immediately after death the heart was seared, a sterile pipette was introduced, and blood was withdrawn and inoculated on to agar slant tubes. After incubation at 35° C. a pure culture was obtained of the bacillus F.

Morphology.—The organism is a short cocco-bacillus, highly motile and flagellated. The flagella are attached near the ends of the bacillus and are shorter and thicker than those of bacillus typhosus. The well-marked flagella and high motility readily differentiate it from the bacilli of Flexner and Shiga.

Staining reactions.—It retains the ordinary simple stains but is decolourised by Gram's method.

Cultivation experiments.—The bacillus F grows well on all ordinary media at the usual hot and cold incubator temperatures. Anaerobic cultures by the pyrogallic method at 35° C. were negative. Comparative culture tests were made in various media, the most important of which are tabulated in Chart A. From this chart it is seen that after seven days' incubation at 35° C. (20° C. in the case of the gelatin media) the bacillus F differs from the bacillus typhosus, the paratyphoid bacillus A and B (Schottmüller), the bacillus enteritidis Gaertner, and the colon bacillus in the complete absence of any naked-eye change in litmus milk. Even when the tubes were kept in the incubator for three weeks or more no visible alteration took place. We regard this as a most valuable differential test. The absence of indol in peptone water and of fluorescence in neutral red broth is sufficient to separate bacillus F from the colon bacillus. From the bacillus enteritidis Gaertner and the paratyphoid bacilli A and B (Schottmüller) it is distinguished by the absence of fluorescence in neutral red broth; from Morgan's No. 1 bacillus by the absence of indol formation; and from Morgan's bacilli Nos. 3 and 4 by the fact that the bacillus F shows well-marked motility. In order further to differentiate between bacillus F and allied organisms and to avoid, so far as possible, errors in the reactions due to the introduction of extraneous organic material the following medium was prepared:—

Peptone (Witte)	1 gramme.
Carbohydrate	1 ,,
Sodium chloride	0·75 ,,
10 per cent. watery solution of litmus ...	10 cubic centimetres.
Distilled water	90 cubic centimetres.

To this medium various carbohydrates were added, and the presence or absence of gas formation was demonstrated by the introduction of Durham's tubes. An uninoculated series was kept and incubated with the inoculated tubes. It was found that the depth of colour in the lactose, mannite, maltose, inulin, and arabinose control tubes became slightly reduced on keeping but not sufficiently to vitiate the experiment.

The tubes were incubated for nine days, but no obvious changes occurred after the fourth day. In Chart B the alterations in the media are epitomised. The reactions obtained at once differentiate the bacillus F from the bacillus typhosus by the formation of gas in mannite, maltose, dulcite, sorbite, arabinose, and glucose; from bacillus enteritidis Gaertner by the absence of action upon lactose and galactose; and from the paratyphoid bacilli A and B by the absence of action on galactose. From Morgan's No. 1 bacillus it is differentiated by the formation of gas in mannite, maltose, sorbite, and arabinose, and the absence of gas formation in galactose.

The fact that bacillus F fails to produce any effect upon lactose and galactose is confirmatory evidence of the milk culture reactions previously mentioned.

Agglutination reactions.—A rabbit was given an intraperitoneal inoculation of an emulsion in 0·75 per cent. saline solution from a 24 hours' growth on agar. Diarrhœa was present on the next day and lasted for four days. Blood was obtained from the marginal vein of the ear on varying dates from 21 to 68 days after the inoculation and that of a normal rabbit was used as a control. All the observations were made with 24 hours old lemco broth cultures by means of a hanging drop, one-sixth lens, at laboratory temperature. In the lower dilutions the loop method was adopted. Each dilution formed an individual experiment as it was found that agglutination occurred with great rapidity. To obtain the higher dilutions a graduated pipette was used, so that the serum might be immediately added to the emulsion in the strength required for the experiment. Errors due to the influence of lower dilutions were thus avoided. Two hours were adopted as a time limit. The results of the experiments are seen in

CHART A.—*Comparative Reactions after Seven Days' Incubation.*

Media.	Bacillus typhosus.	Paratyphoid A. (Schottmüller.)	Paratyphoid B. (Schottmüller.)	Bacillus F.	Bacillus enteritidis Gaertner.	Bacillus coli.
MacConkey neutral red plates	Colonies colourless.	Ditto.	Ditto.	Ditto.	Ditto.	Pink.
Glucose agar	No change.	Gas.	Gas.	Gas.	Gas.	Gas.
Glucose gelatin	No change.	Gas.	Gas.	Gas.	Gas.	Gas.
Dulcite gelatin	No change.	No change.	Gas slight.	Gas slight.	Gas.	Gas.
Neutral red broth	No fluorescence.	Fluorescence.	Ditto.	No fluorescence.	Fluorescence.	Ditto.
Litmus milk	Acid, no clot.	Ditto.	Ditto.	Unchanged.	Slight acidity, becoming alkaline.	Acid and clot.
Mannite broth with Durham's tube	No gas.	Gas slight.	Ditto.	Gas.	Ditto.	Ditto.
Peptone water	No indol.	Ditto.	Ditto.	Ditto.	Ditto.	Indol.

CHART B.—*Carbohydrate Reactions.*

Organism.	Erythrite.	Saccharose.	Lactose.	Raffinose.	Mannite.	Maltose.	Dulcite.	Galactose.	Adonite.	Sorbite.	Inulin.	Salicine.	Arabinose.	Dextrine.	Glucose.
Bacillus F	—	—	—	—	1. A.G.	1. A 2. A.G.	1. A.G.	—	—	1. A.G.	1. A.	—	1. A.g.	1. a ?	1. A.G.
Bacillus typhosus	—	—	—	—	1. A.	1. A.	—	1. A.	—	1. A.	1. A.	—	—	1. a.	1 A.
Bacillus paratyphoid A (Schottmüller)	—	—	—	—	1. A.g. 2. A.G.	1. A.g. 2. A.G.	1 — 2 — 3. A. 4. A.G.	1. A. 2. A.G.	—	1. A.g. 2. A.G.	1. A. 2. A. 3. A.	—	1. A. 2. A.g. 3. A.g. 4. A.G.	1. A.	1. A.G.
Bacillus paratyphoid B (Schottmüller)	—	—	—	—	1. A.G.	1. A.G.	1. a. 2. A.G.	1. A. G.	—	1. A.G.	1. A.?G.	—	1. A.G.	1. a.	1 A.G.
Bacillus enteritidis Gaertner.	—	—	1. a. 2. — 3. Alk.	—	1 A.G.	1. A.G.	1. A. 2. A.G.	1. A.G.	—	1. A.G.	1. A.?G.	—	1. A.g. 2. A.g. 3. A.g. 4. A.G.	—	1. A.G.
Morgan's No. 3 bacillus.*	—	—	—	—	—	—	—	A.g.	—	—	—	—	—	—	A.g.

* These reactions are taken from Dr. Morgan's paper in the *British Medical Journal*, April 21st, 1906.
The numerals represent the days. – = No change. A = Acid. a = Slight acid. G = Gas. g = Slight gas. Alk. = Alkaline.

CHART C.—*Agglutination Reactions.*

Organism.	1 in 25.	1 in 50.	1 in 100.	1 in 500.	1 in 1000.	1 in 2000.	1 in 4000.
Bacillus F	+ (Statim.)	+ (Statim.)	+ (10 mins.)	+ (20 mins.)	+ (½ hr.)	+ (1¼ hrs.)	+ (2 hrs.)
Bacillus paratyphoid B	+	+	+ (2 hrs.)	—	—	—	—
Bacillus typhosus	+	+ (Small. 2 hrs.)	—	—	—	—	—
Bacillus paratyphoid A	—	—	—	—	—	—	—
Bacillus enteritidis Gaertner	—	—	—	—	—	—	—
Bacillus coli	—	—	—	—	—	—	—

Chart C. From these it appears that the bacillus F is related to the paratyphoid bacillus B and in a much less degree to the bacillus typhosus. With the paratyphoid bacillus A, the bacillus enteritidis Gaertner, and the colon bacillus, the agglutinations were negative even in the lowest dilutions. A second rabbit dying in six days showed agglutinative power up to 1 in 100. Comparative tests were not tried.

Animal Inoculations.

Mice.—Three mice were inoculated intraperitoneally, the first two from the original culture, the third from a culture recovered from mouse No. 2. All died within 24 hours. No. 1 showed green diarrhœa one and a half hours after injection. No such appearance was observed in either of the other two, but post mortem (as will be seen below) the small intestines were filled with fluid green contents. Pure cultures were obtained from the blood in each case after death.

Rats.—Two were inoculated. One died five days later. From the fatal case the bacillus was recovered from the blood after death. There was no diarrhœa, but post mortem the intestines were found intensely congested and full of gas and a greenish-yellow fluid. The bronchial glands, however, showed caseous degeneration of old standing; much stress, therefore, cannot be laid on this experiment. The second rat, showing no symptoms after four days, was killed, but nothing was recovered from the blood.

Guinea-pigs.—16 guinea-pigs were inoculated as follows: four from the original strain, one from a culture recovered from a mouse's blood, and 11 from cultures recovered from guinea-pigs. All died within 24 hours and from all pure cultures were again obtained. None showed any diarrhœa, but here again the post-mortem examination showed the fluid green contents of the small intestine observed in the mice. In one case the surface of the mucous membrane of the intestine was washed, seared, and a deep scraping inoculated on to media when a pure culture of the bacillus F was obtained. Two guinea-pigs were inoculated directly with the peritoneal fluid from dead injected guinea-pigs. One died and a pure culture was obtained from the blood and peritoneal fluid; the other was alive and healthy 19 days later.

Post-mortem appearances.—These apply to both mice and guinea-pigs and were found invariable. The parietal peritoneum showed no congestion, but slight effusion was always present. The small intestine, especially in the middle third, was full of a greenish watery fluid, distended with gas and much congested. The spleen and liver were enlarged and congested. The mucous membrane of the small intestine was thick and covered with a glairy effusion. The cæcum was distended with gas; the large intestine usually contained semi- or fully-formed fæces. The pleuræ and lungs appeared normal. The pericardium was normal and there was no excess of pericardial fluid.

Microscopical examination.—Middle third of small intestine: Great congestion of the mucous membrane with a few small hæmorrhages; the glands showed inflammatory changes, especially towards the lumen of the bowel, and were filled with débris. Lower third of small intestine: Similar changes but less marked. Spleen: Extreme congestion and commencing degeneration of the cells, especially those adjacent to the dilated vessels. A bacillus morphologically resembling bacillus F was seen in the mucous and submucous coats of the middle and lower thirds of the small intestine and in the spleen.

Rabbits.—Four rabbits were inoculated intraperitoneally with varying quantities of the bacillus F. Of these one developed no symptoms, one became sick, and two developed diarrhœa. The history of these two is as follows. Rabbit No. 1: Inoculated intraperitoneally on Nov. 26th, 1907. Diarrhœa for four days; rabbit well thereafter. On Dec. 17th and 20th, 1907, and on Feb. 2nd, 1908, comparative agglutination reactions were tested. The result of one of these (Feb. 2nd, 68 days after inoculation) is seen in Chart C. Rabbit No. 2: Inoculated intraperitoneally on July 15th, 1908. Ill July 18th, diarrhœa July 20th, marked emaciation on July 21st, death occurring on the same day. Agglutination at laboratory temperature two hours, ⅓ lens, 1 in 50 complete in two hours, 1 in 100 marked but not complete in the same time. The bacillus F was recovered from the blood, peritoneal exudate, and in scrapings from a Peyer's patch. The post-mortem appearances were as follows. Rigor mortis was present, the body was very emaciated, the peritoneum was moderately congested, and the peritoneal fluid was in excess; there were some soft fibrinous flakes over the intestines and parietal peritoneum and very marked gaseous distension and considerable congestion of the intestine; the great omentum was shrivelled and fatless, the small intestine contained much greenish fluid, and its walls showed well-marked congestion and prominence of Peyer's patches but no ulceration. The cæcum showed extreme gaseous distension, its contents were semi-fluid and greenish; the large intestine was congested in its upper two-thirds and contained no formed masses but gaseous and semi-fluid material. The liver, the spleen, the lungs, the pleuræ, and the pericardium appeared to be normal.

Microscopical examination.—Upper third of small intestine: The mucous membrane showed intense inflammatory change and was in parts necrosed and sloughing off; the epithelium where still intact was granular and the nuclei stained feebly or not at all; the muscular and peritoneal coats were congested. Middle third of small intestine: The mucous membrane was totally disorganised and was replaced by a thin irregular layer of inflammatory round cells and débris; only occasionally were the tips of crypts seen and these showed intense inflammatory change with commencing necrosis; the muscular and peritoneal coats were congested. Large intestine: Less destructive change was noticeable here, but the mucous membrane was inflamed and the glands were filled with débris; all the coats were congested. A bacillus morphologically resembling bacillus F was seen in large numbers in the wall of the small intestine and to a much less extent in the large intestine.

Feeding experiments.—Feeding experiments were carried out on a mouse, a rabbit, a kitten, and seven puppies. In the mouse and rabbit there was no result. A three months old kitten was twice fed with the same milk culture as puppy No. 3 without result. Puppy No. 1, aged about six weeks, was fed on April 28th with a very minute quantity of a 24 hours old agar culture emulsified and placed on bread. On April 29th there was slight, and on the 30th marked, diarrhœa, geenish in appearance. This continued until May 4th, when the puppy had recovered. A control remained well. On May 5th puppy No. 1 was again fed and also a new puppy (No. 2), aged about seven weeks. Each received two tubes of a 24 hours old milk culture. On the 6th puppy No. 1 had violent diarrhœa with marked tenesmus, which continued till the 14th when it began to recover. Puppy No. 2, on the 6th, had very severe diarrhœa, rapidly wasted, and died on the 7th.

On May 8th puppy No. 3 was fed on two tubes of a 24 hours old milk culture. On the 11th it developed diarrhœa, which became very marked on the 12th and lasted till the 23rd. The stools were not well formed until the beginning of June. From the fæces of this puppy the organism was recovered. A loopful was taken into ox-bile and incubated over night, subcultured into lemco broth, and from this plated on to MacConkey bile salt plates. The colourless colonies were picked off, subcultured on agar, and the bacillus was found. The post-mortem appearances found in this puppy are given hereafter.

On July 16th, 1908, puppies Nos. 4 and 5, aged three weeks, were each given two tubes of a 24 hours old milk culture of the original strain (ten months old). On the 26th both showed marked diarrhœa which lasted about a week; there was considerable loss of flesh. No attempt was made to recover the organism from the fæces.

On July 16th, 1908, puppies Nos. 6 and 7, aged three weeks, received the same quantity of a 24 hours old milk culture recovered from a recently dead guinea-pig. Severe diarrhœa appeared on the 21st. On the 28th the diarrhœa was diminishing. On this date one of the puppies was again fed on six tubes of a 24 hours old milk culture which had been recovered from a guinea-pig on the 20th. On the next day (29th) this puppy was much worse, diarrhœa was severe and constant, and the puppy could scarcely stand. The other puppy remained as on the 28th. On August 8th the organism was recovered from the fæces of both. Diarrhœa was still present in both on the 11th. The one which received the second feeding was very weak. From that date they gradually improved. Controls from the same litter remained healthy. On the 25th the agglutination reaction up to 1 in 25 was positive.

Post-mortem appearances in puppy No. 2.—The puppy was

markedly emaciated, the parietal peritoneum was not congested, and there was no effusion into the cavity. The liver and the spleen were normal; the gall-bladder was full. The intestines as a whole were congested and the small intestine showed dark purple patches. The contents from the duodenum to the rectum were fluid, of a dark green colour in the small intestine and of a yellowish green in the large. There was considerable gaseous distension. The lungs, the pleuræ, and the pericardium appeared normal. Cultures made from the blood were sterile, and those obtained from the intestinal contents and from deep scrapings of the mucous membrane failed to show the specific organism. Sections were made of the intestinal wall and they gave the following results. Duodenum: Some congestion and œdema of the mucous membrane, especially towards the lumen of the bowel. Jejunum: Congestion throughout the depth of the mucous membrane; swelling, granulation, and breaking up of the epithelium towards the lumen of the bowel; débris in the glands; some small round-celled deposit in the interglandular connective tissue. Ileum: Condition rather more marked than in the jejunum; a few interstitial small hæmorrhages in the mucous membrane. Large intestine: Congestion of the mucous membrane and a little round-celled deposit in the interglandular connective tissue. A bacillus morphologically resembling the bacillus F was seen in the ileum.

Experiments to Demonstrate the Presence or Absence of Extracellular and Intracellular Toxins.

In order to demonstrate the presence or absence of intracellular and extracellular toxins two sets of experiments were devised.

Intracellular toxin.—Inoculations of emulsions of agar cultures in 0·75 per cent. sodium chloride were given after sterilisation at 60° C. for 40 minutes. The sterility was tested by free inoculation of agar tubes and incubation at 35° C. The results were as follows. On April 6th a 48 hours old agar culture was emulsified in 10 cubic centimetres of normal saline solution. Of this five cubic centimetres were inoculated intraperitoneally into a guinea-pig. On the next day the animal died. The post-mortem examination disclosed that the middle part of the small intestine was greenish in colour and contained much gas and bile-stained fluid. Films from the peritoneal exudate, the blood, the liver, and the spleen were negative, and cultures from these also proved sterile. On April 9th a 24 hours old agar culture was again emulsified in 10 cubic centimetres of normal saline solution and one cubic centimetre of this was inoculated intraperitoneally into a guinea-pig. On the next day the animal was listless, but it thereafter recovered.

Extracellular toxin.—700 cubic centimetres of Martin's broth, contained in a Winchester quart bottle laid horizontally in the incubator to give as much air space as possible, were inoculated on the surface and incubated at 37° C. for 10 days. No surface growth occurred, but an abundant growth formed in the medium. The broth was filtered and tested for sterility. On March 31st five cubic centimetres were inoculated intraperitoneally into a guinea-pig. The result was entirely negative, the guinea-pig remaining without any symptom of illness. So far as these experiments go endotoxins are present and extracellular toxins are absent.

Virulence.—An attempt to gauge any variation in virulence due to passage through a series of guinea-pigs was made by inoculations of 24 hours old agar cultures carefully standardised on the Thoma-Zeiss stage by the method elsewhere described by us.[1] Eight inoculations were given and in each case where death resulted and in the first case where the animal was killed and the organism grown from the blood, the culture recovered was employed for the next experiment in the series. The results obtained indicate no appreciable rise or fall in the virulence. To insure death a dose of about 2,000,000,000 was required at the end as at the beginning of the experiments.

Immunity produced.—Incidentally some indication of the production of immunity was given by a guinea-pig in the above series. On June 4th it received 850,000,000 of a 24 hours old culture intraperitoneally. On the 5th it was listless but recovered. On the 9th it was re-inoculated with 2,400,000,000 of a 24 hours old culture from the same source as the former. The animal remained perfectly well; control guinea-pigs inoculated with the same dose died.

[1] Bio-chemical Journal, vol. iii., 1908.

Conclusions.

The bacillus F was obtained from a case of epidemic diarrhœa. By its cultural reactions it is readily differentiated from the bacillus typhosus. The absence of indol formation separates it from Morgan's No. 1 bacillus. The presence of well-marked motility is sufficient to distinguish it from Morgan's bacilli Nos. 3 and 4 and from the dysentery bacilli. A reference to the agglutination reactions (Chart C) shows that there is a relationship between this organism and the bacillus typhosus and the paratyphoid bacillus B. The bacillus F is able to produce diarrhœa in animals and can be recovered from their stools. We believe therefore that it may be an agent in the production of epidemic diarrhœa.

During the summer of 1908 we have further investigated this disease and find that we have obtained a positive agglutination reaction varying from 1 in 25 to 1 in 100 in nearly half of the cases tested against the bacillus F. The specificity of this reaction we cannot yet affirm, but we hope later to publish a further report on the material obtained during the past summer.

A CASE OF PRIMARY SQUAMOUS-CELLED EPITHELIOMA OF THE EPIDIDYMIS.

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As we have been unable to find a similar case recorded we feel that the following is of such unusual interest that we consider ourselves justified in publishing it in full.

A police constable, aged 46 years, a patient of Mr. R. P. Marshall of Bermondsey, was admitted into Guy's Hospital on April 30th, 1907, for a "painful enlargement of the right testicle." During his 25 years' service in the police force he had suffered from influenza nine times, from quinsy once, and from pneumonia once. He said that his right testicle had always been a little larger than the left. There was no history of gonorrhœa or syphilis. On Christmas eve, 1906, he arrested a drunken man, who grasped and squeezed his right testicle rather severely, but no swelling resulted. A few weeks later he noticed a dragging pain in the testicle which was slightly swollen. The swelling gradually increased in size and became harder. On March 12th, 1907, he consulted Mr. Marshall, complaining of "a feeling of weight, a dragging pain in the right testicle, and of occasional vomiting." These symptoms became worse when the patient was standing. A diagnosis of chronic orchitis was made, but in spite of treatment by strapping, mercurial inunctions, and other local applications the swelling persisted and the man began to waste and to have more severe pain. Mr. Marshall noticed some softening at one spot and then favoured the diagnosis of tuberculous disease, and referred him to one of us at Guy's Hospital on April 18th.

At this time the right half of the scrotum was moderately enlarged and contained a swelling which was smooth, soft, and translucent in front and below but hard and fairly irregular posteriorly, where an enlarged epididymis could be recognised. The testicle itself was not enlarged. The scrotum was slightly adherent to the postero-inferior part of the swelling, which was very tender. The cord was slightly thickened at its lower part and a small, round, hard nodule was felt in it just within the external abdominal ring. At the time the nodule was thought to be in the vas deferens, which was, however, quite normal in size and consistency lower down. The vesiculæ seminales and the prostate were not enlarged or unduly tender. The urine and the act of micturition were normal and there were no signs of pulmonary phthisis. The patient was pale and in poor condition but not thin, his pulse was quick, and he seemed to be more ill than the local condition could well explain. No enlargement of the iliac or inguinal glands could be discovered by careful and repeated examinations. There was no growth upon any part of the skin of the body, in the

mouth, or in the rectum and anus. There were no signs of any œsophageal disease.

A diagnosis of tuberculous disease of the epididymis and vas deferens with secondary hydrocele was made. It was thought that the disease was pursuing an unusually rapid course in this man, who looked considerably older than his years. Castration without delay was recommended. The unusual hardness of the epididymis gave rise to some misgiving and malignant disease was considered but excluded on account of the extreme rarity of primary growth of the epididymis.

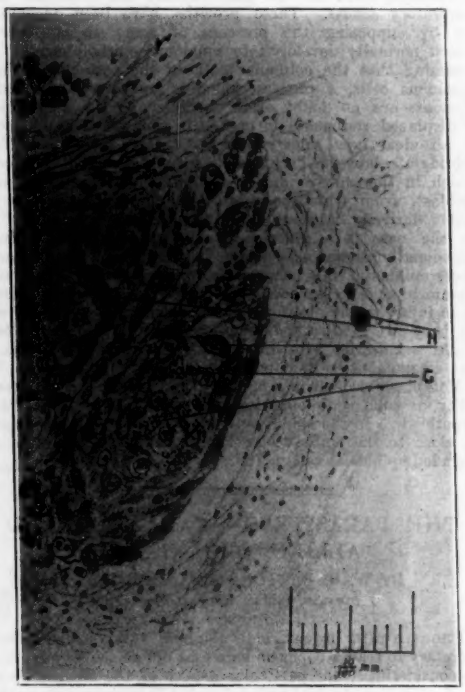
Operation.—On May 2nd an incision three inches in length was made over the right inguinal canal, which was freely opened. The cremasteric fascia was incised and the infundibuliform fascia was exposed. Without opening the latter the spermatic cord was isolated as far as the internal abdominal ring, where it was transfixed and tied with catgut. It was then clamped and divided a little below the ligature. The cut surface was normal in appearance and the vas deferens was not enlarged. The testicle was then pressed upwards into the wound in the groin, and it was easily shelled out by blunt dissection. The separation was effected between the cremasteric and infundibuliform fasciæ, so that the testicle, epididymis, tunica vaginalis, and cord were removed *en masse* within their complete fibrous covering, which was slightly adherent to the lower and hinder part of the scrotum. Very little hæmorrhage resulted from the separation. The inguinal canal was firmly closed and narrowed, the lower margin of the wound in the external oblique being made to overlap the upper edge by means of a continuous catgut suture. The cutaneous wound was closed without drainage, but the empty right half of the scrotum was elevated and securely bandaged against the pubes so as to prevent oozing into it.

Primary union resulted and neither blood nor serum accumulated in the scrotum. On the evening of May 11th, after the patient had returned to bed, slight œdema of the right leg was noticed for the first time. When he was discharged on May 22nd he was fairly well but still pale, with a quick and poor pulse. He had no pain and his wound was quite sound.

Mr. Marshall gives the following excellent account of the later course and symptoms: "Soon after his discharge I noticed some œdema of both ankles; this increased and spread up the lower extremities until it became considerable and was only slightly lessened by raising the foot of the bed; later ascites appeared but never became considerable; also œdema of the buttocks and lumbar region. This œdema I put down as being due to secondary infection of the lumbar glands pressing on the inferior vena cava. The pain again became very severe (it was relieved by the operation), shooting from the groin up to the umbilicus and round to the back. The vomiting at times was quite beyond control. The scar and inguinal glands remained free from secondary infection, but there appeared to be some thickening in the neck of the scrotum. Bedsores formed and I procured a water bed for him. He gradually sank and became more wasted about the head, thorax, and upper extremities, while the abdomen and lower extremities remained water-logged; he died on June 23rd at the age of 46, his death being due, in my opinion, to exhaustion consequent upon the pain, vomiting, sleeplessness, &c., due to secondary deposits in the abdomen. The bedsores also probably contributed to the exhaustion. No post-mortem examination was made. There was no evidence of secondary deposits outside the abdomen."

Description of the parts removed at the operation.—The tunica vaginalis contained about one and a half ounces of clear, dark-yellow fluid. The testicle was normal in appearance and on section was found to be free from new growth. (This was confirmed by the microscopical examination.) The epididymis was considerably and uniformly enlarged. It was hard and presented several slight elevations on its surface. On section it was found to be entirely occupied by a firm new growth which was grey and almost translucent in appearance and traversed by fibrous trabeculæ. Scattered about in this new growth there were some small, yellow, caseous centres of necrosis. The growth had spread into the parietal layer of the tunica vaginalis on its mesial aspect, so that this structure was thickened and infiltrated for some considerable distance; it was, however, not invading the skin of the scrotum which was quite normal in appearance and showed no signs of ulceration. The vas deferens was quite normal. In front of it, at the level of the external abdominal ring, there was a small swelling, which was, however, not attached to it. This swelling presented the same appearance as did the primary growth. Although it was not shown to be connected with the lymphatics or veins of the cord there can be little doubt that it had originated in the former.

Microscopic examination.—As the growth of the epididymis, the infiltrated portion of the tunica vaginalis, and the nodule in the spermatic cord presented the same appearances it will only be necessary to describe the former. This consists of a fibrous stroma surrounding large columns of cells which have the appearance of an ordinary squamous-celled carcinoma. (See figure.) The



Microscopic appearance of the growth of the epididymis. H, Horny cell-nests. G, Granules of keratohyalin.

cells are large with clear nuclei. There are numerous concentrically arranged cell-nests which stain a brownish colour by van Gieson, and a blue by Gram's method. This proves them to have undergone a horny change. Many of the cells in their neighbourhood are occupied by granules of keratohyalin. Every here and there a few very typical prickle-cells can be demonstrated. The remains of the tubules of the epididymis are, in all the sections examined, denuded of their epithelium. The growth, however, appears to be spreading out from these tubules, the cells being more numerous and the columns which they form larger in their immediate vicinity. There are extensive areas of necrosis.

Conclusions.—The presence of prickle-cells and of horny cell-nests proves this tumour to be a squamous-celled epithelioma. There are several possibilities as to its origin.

1. It may have been a secondary deposit of an epithelioma in some other situation. Against this view may be urged the fact that no such tumour was found, although a careful examination was made. Again, the clinical symptoms pointed to a primary affection of the epididymis. If there had been a concealed epithelioma—e.g., in the pharynx or œsophagus—it seems incredible that it should not have given rise to symptoms in some situation nearer home, since it must have been of long standing and pretty generally

disseminated to produce so large a swelling of the epididymis.

2. The epithelioma may have grown in an inclusion dermoid in the neighbourhood of the epididymis. There is no evidence to show that such was the case, since the epididymis was uniformly infiltrated and there were no signs of the presence of such a dermoid.

3. We think that neither of the above explanations is the correct one and consider the tumour to have originated primarily in the epithelium of the epididymis. This structure is, however, lined by columnar ciliated cells, and we should expect a primary epithelial new growth arising in it to be a columnar or possibly a spheroidal-celled carcinoma, but not a squamous epithelioma. Epitheliomata are, however, occasionally observed in other organs that are lined by columnar epithelium, such as the gall-bladder, the intestinal and respiratory tracts. These growths have been accounted for by supposing the presence of some displaced cells which normally develop into squamous epithelium; or by assuming that the columnar cells of the part change into squamous cells, a process which is known as metaplasia. Tumours are, no doubt, often explained by the assumption of displaced rudiments in organs in which it does not seem at all clear how such rudiments became included. The epididymis, however, is developed from the Wolffian duct, which in the embryo lies immediately under the external epiblast, from which, according to some observers, it is partly derived. Although this does not seem normally to be the case it is quite possible that the growing duct occasionally separates off some of the cells from the epiblast. These epiblastic cells become incorporated with the duct and remain in an inactive condition until from some cause, such as an injury to the scrotum, and the inflammation thereby set up, they proliferate and assume malignant characters. They would necessarily give rise to an epiblastic carcinoma—i.e., a squamous epithelioma.

Metaplasia is in some organs, in which there is no possibility of such rudiments having been included, the only hypothesis. In the epididymis, however, which is developed so close to the epiblast, we think that the assumption of included epiblastic cells is the true explanation.

THE PARASITE OF KALA AZAR AND ALLIED ORGANISMS.[1]

BY W. S. PATTON, M.B., CH.B. EDIN.,
CAPTAIN, INDIAN MEDICAL SERVICE.

SHORTLY after my return to England I was asked by our secretary to read a paper on kala azar before the society, and on considering what particular aspect of the disease I was most competent to deal with I decided to limit myself to the parasite, and to-night I propose giving you some account of my observations on this organism and its allies. I have no doubt you are all well acquainted with the parasite the discovery of which has opened up an entirely new field of research of great practical importance. Although we now know a great deal about it and its two allies, the parasites of infantile splenomegaly and Oriental sore, there is considerable doubt as to their exact systematic position. Laveran and Mesnil, I believe, still regard the parasite of kala azar as belonging to the genus *Piroplasma*, while you will remember that Ross placed it in an entirely new genus, *Leishmania*. The view that this parasite is a hæmocytozoon can no longer be entertained, and Christophers's recent studies on the extra-corporeal life-cycle of *Piroplasma canis* in the tick have shown that it does not pass through a flagellate stage similar to that of the parasite of kala azar. I am aware that certain observers claim to have discovered flagellate stages in some *Piroplasmata*; their observations, however, are far from convincing. I have recently seen some of these so-called *Piroplasma* flagellates and have no hesitation in saying that they do not bear any resemblance to the characteristic flagellates of the parasite of kala azar. It should also be noted that these flagellate stages of *Piroplasmata* have so far only been seen in test-tubes or in the blood of the vertebrate host, whereas they ought to occur naturally in ticks or other invertebrates. There is, however, no doubt that the parasite of kala azar and its two allies as seen in man are but stages in the life-histories of flagellates, and the important question to answer is, Do they belong to any known group of the parasitic flagellata? As our knowledge of the life-cycles of these organisms is exceedingly limited I think it somewhat premature to say they belong to an entirely new genus, and I hope to show you that they do belong to a group which has long been recognised as occurring in the alimentary tracts of insects. From a study of the flagellates of the parasite of kala azar in the test-tube as well as in the bed bug *Cimex rotundatus* I have no hesitation in saying it is not a trypanosome, for like all other observers who have studied this stage I have never seen anything similar to the well-known vertebrate trypanosome.

The most important suggestion as to the nature of the parasite of kala azar was undoubtedly made by Rogers who, on comparing it with *Herpetomonas muscæ domesticæ* as figured by Prowazek, recognised the close similarity in the build of the two flagellates. Unfortunately, Prowazek erroneously described the adult flagellate of *Herpetomonas muscæ domesticæ* as possessing two flagella closely united together, and in addition its life-cycle according to his account is exceedingly complicated. For more than a year I have made an exhaustive study of this flagellate, the type species of the genus *Herpetomonas*. In Madras about 100 per cent. of flies caught in the bazaar meat shops are infected with it and as a result of my observations on the living parasite as well as in stained preparations I am unable to accept Prowazek's view of its flagellar apparatus, for I find the adult flagellate has a single flagellum. I can only assume that Prowazek happened to examine flies in which the majority of the adult flagellates were undergoing the early stages of simple longitudinal division. I have frequently seen this in Madras. I also find that the life-cycle of the flagellate of the house fly is very simple and is similar to that of the parasite of kala azar as far as we know it at present.

You will remember that Prowazek began his description of *Herpetomonas muscæ domesticæ* at its adult flagellate stage and entirely omitted the stage preceding it, thus giving anyone who read his paper an entirely erroneous idea of its life-cycle. As you will see later the earlier stages in the development of the parasite are of great importance as it is this stage when it is so like the parasite of kala azar. In order therefore to clear up this difficulty I will describe in some detail the life-history of *Herpetomonas muscæ domesticæ*, the complete account of which I shall reserve for another occasion. After having studied a large number of these parasites I have found it convenient to divide their life-cycles into three stages, *pre-flagellate*, *flagellate*, and *post-flagellate*, and it should be clearly understood there is no hard and fast line dividing one stage from the other, they merge into each other. You will, however, see that by studying these flagellates along these lines it is easy to work out their complete life-histories, and above all to find out how they pass from one host to another. In the case of *Herpetomonas muscæ domesticæ* in Madras the flagellate and post-flagellate stages are readily found, but owing to the fact that a large number of flies have to be examined before the pre-flagellate stages can be studied, this important portion of the life-cycle of the parasite is very apt to be missed.

The pre-flagellate (Fig. I., Figs. 1 to 3A) stage is usually found in the midgut, the parasites lying in masses within the peritricheal membrane; they are round or slightly oval bodies measuring on an average about 5·5 μ in breadth and contain a nucleus, blepharoplast, and a number of granules. They multiply by simple longitudinal fission or by multiple segmentation (Figs. 2, 2A, 3, 3A), so that very soon a large number of these bodies are formed. The flagellate stage is characterised by the formation of the flagellum, a single stout filament which projects freely from a point in close proximity to the blepharoplast (Fig. 4), the resulting flagellate elongates and later divides by simple longitudinal division (Figs. 5, 6, and 7). The nucleus of the adult flagellate lies about the centre; the blepharoplast, a large rod-shaped body, is nearly always situated a short distance from the anterior end; the flagellum is a single filament which projects freely almost at once from the rounded anterior end. The early stage of the process of longitudinal fission begins by a splitting of the root of the flagellum and this, as well as further stages of the same change, led

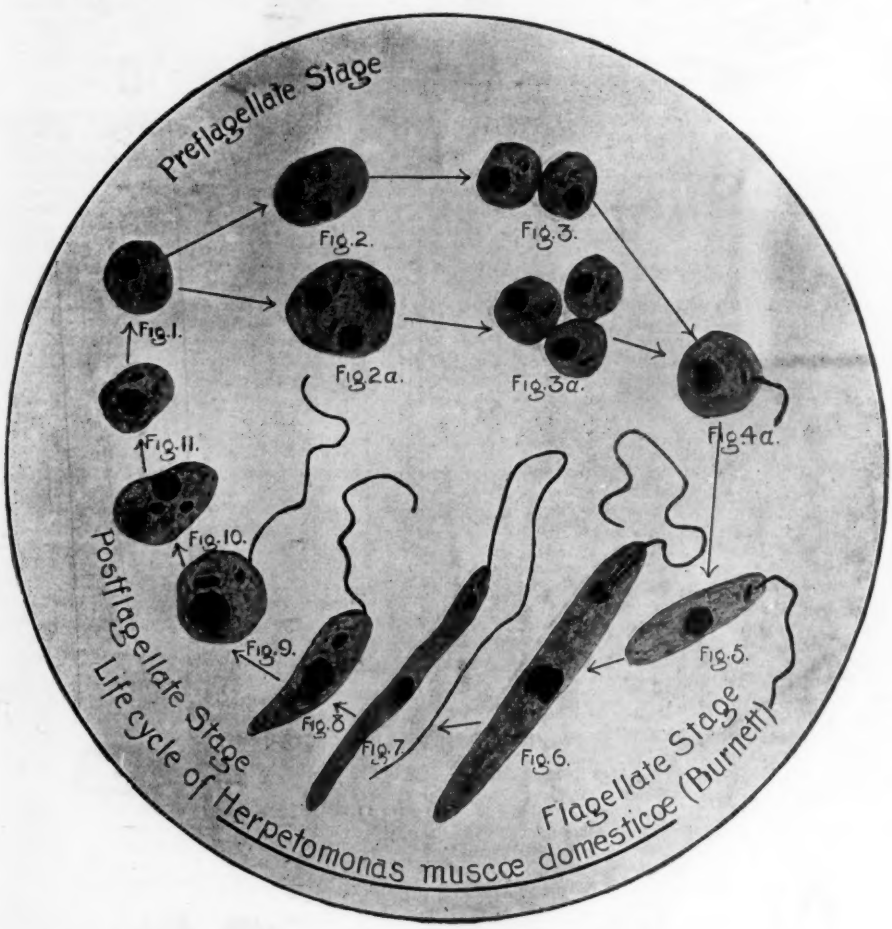
[1] A paper read before the Society of Tropical Medicine and Hygiene on Jan. 15th, 1909.

Prowazek to believe that *Herpetomonas muscæ domesticæ* has a double flagellum. Had he, however, studied the method of formation of the flagellum he would not have fallen into this error. It is quite a common thing to find nearly all the adult flagellates in a fly exhibiting this appearance of a double flagellum. If the midguts of a number of flies are next examined in the fresh condition, in some the flagellates will be seen collecting together towards the rectum; they attach themselves in rows by their flagellar ends to the gut wall and now further changes are seen to take place. The most external parasites begin to shorten, and while this change is taking place the flagellum degenerates and is eventually shed (Figs. 8 and 9); a palisade of parasites is now formed, the most internal showing the changes noted above, while the most external are seen as round bodies devoid of flagella and many of these latter forms are seen dividing again (Fig. 10). Eventually, all the bodies round up and are connected together by a sticky substance and these masses of cells constitute the cysts (Fig. 11), and this I regard as the post-flagellate stage. These cysts are passed out in the fæces of the fly *en masse* and are well adapted to resist desiccation and it is these bodies which are again sucked up accidentally by the flies as they feed. Such is a short account of the life cycle of *Herpetomonas muscæ domesticæ*; it is exceedingly simple, for I can find no evidence of the complicated sexual changes described by Prowazek.

Turning now to another herpetomonad, *Herpetomonas lygaei*, which I have recently described, you will see the parasite has a very similar life-cycle, only in this case it is almost identical with the parasite of kala azar. In its pre-flagellate stage it is a small round or pear-shaped body Fig. II., Fig. 1) measuring from 3·5 μ to 4 μ in length; it has a nucleus and blepharoplast and is found lying free in the midgut of *Lygaeus militaris*. The parasite divides by simple fission into two and each half again divides so that four oval bodies are formed (Figs. 2, 3, and 4). These bodies now pass on to flagellation somewhat irregularly (Figs. 5, 6, and 7), so that one may have developed into an adult flagellate while the remainder are dividing further and remain attached to its anterior end (Fig. 7). The adult flagellates divide by simple longitudinal division (Figs. 8 and 9) and eventually collect in the hind gut of the bug where they attach themselves in rows; they now shorten (Fig. 10), the flagella degenerate (Fig. 11) and are shed, and they divide (Fig. 12) at least twice (Fig. 13), resulting in small pear-shaped bodies, the cysts, which are passed out in the fæces of the bug (Fig. 14).

You will remember that I have described in great detail the development of the parasite of kala azar in 12 bed bugs (*Cimex rotundatus*), and if you refer to my illustrations[2] you will find its life cycle as far as it is known is very similar to that of the two herpetomonads which I have just described. All three parasites are very similar in their pre-flagellate stages, except that *Herpetomonas muscæ domesticæ* is much larger; they develop and multiply in the same way and in their

FIG. I.



[2] Scientific Memoirs, &c., No. 31.

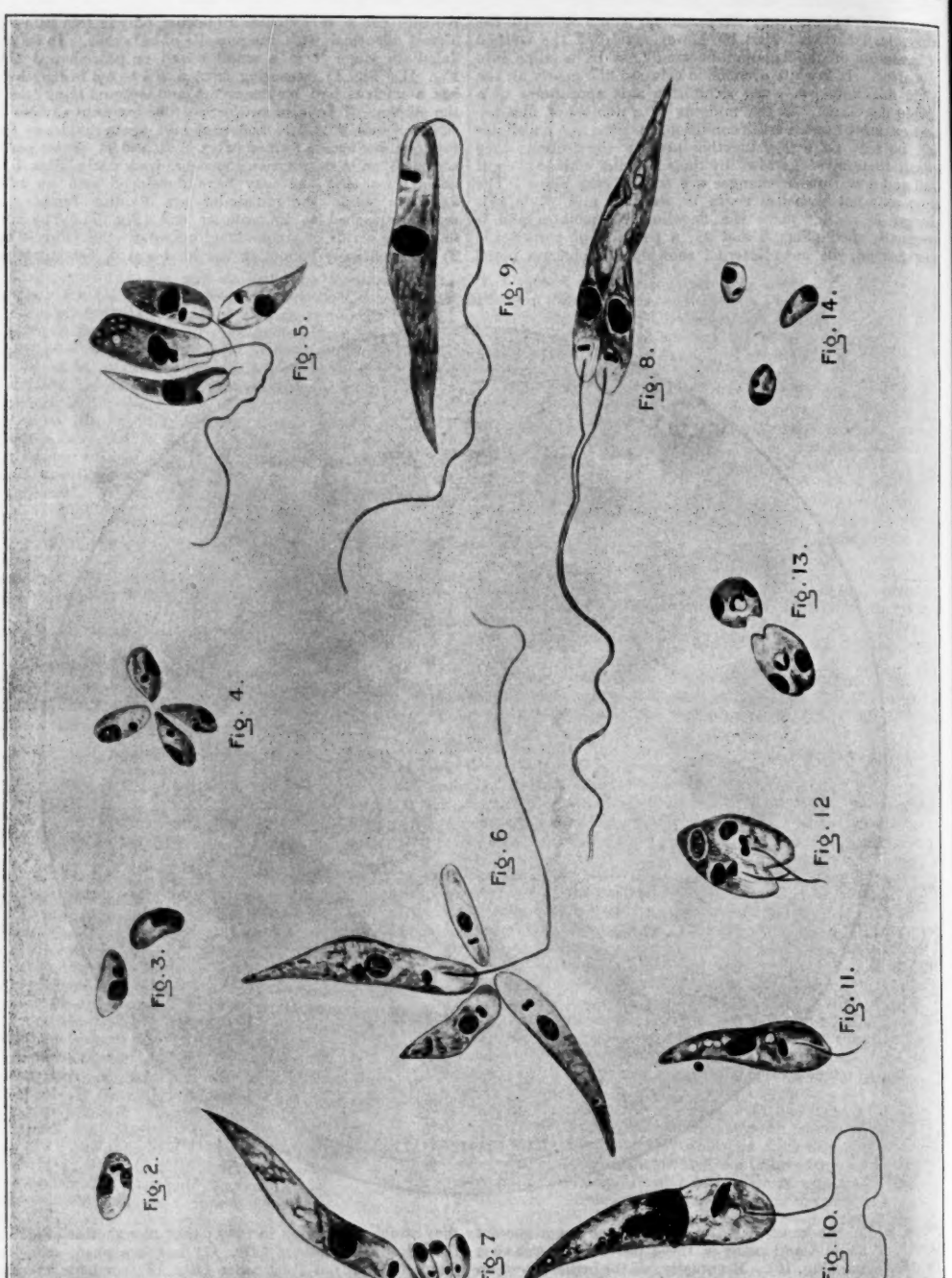


FIG. II.—Herpetomonas Lygaei (Patton). × 3000 (approximately).

adult flagellate stage they have the same general morphological build. They all undergo their developmental stages in the intestinal tracts of insects, but the fact that one of them passes its pre-flagellate stage in man has led most observers to regard it as something quite distinct from a *Herpetomonas*. The parasite of kala azar is certainly not a sporozoon; it remains throughout its life-cycle as far as we know it a typical flagellate. With a complete knowledge of the life-cycle of such a closely allied form as *Herpetomonas lygaei*, it is possible to conjecture that the parasite of kala azar in order to get back to man must pass back again to a non-flagellate stage, post-flagellate, and that this change is most likely to take place somewhere in the neighbourhood of the biting parts of the bed bug. Had I known the complete life-cycle of *Herpetomonas lygaei* when I had my heavily infected bugs I might have been able to solve this problem. This further emphasises the importance of studying seemingly unimportant parasites, and I am sorry to say that there are some people who still think it is a waste of time to study such forms, but there is no doubt that a knowledge of their life-cycles is of the utmost importance in helping to explain those of more complex pathogenic protozoa.

I have now shown you that the parasite of kala azar is a herpetomonad and that in its pre-flagellate stage it may be indistinguishable from a harmless species; this truth is of importance, because in spite of other data the two closely allied human forms—the parasites of infantile splenomegaly and oriental sore—are still regarded as identical with the parasite of kala azar. I know at least three closely allied herpetomonads which are very similar in their pre-flagellate stages to *Herpetomonas muscæ domesticæ*, so that this similarity in one stage is of little importance in distinguishing between these species. The parasite of kala azar should, therefore, be known as *Herpetomonas donovani* (Laveran and Mesnil), the parasite of infantile splenomegaly as *Herpetomonas infantum* (Nicolle), and the parasite of oriental sore as *Herpetomonas tropica* (Wright), and I would suggest that the diseases produced by these parasites should be collectively known as herpetomoniases.

It is most unfortunate that all attempts to transmit *Herpetomonas donovani* to animals have entirely failed; quite recently I inoculated dogs with the parasite with negative results. It seems to me, therefore, that it will be well-nigh impossible to prove finally that *Cimex rotundatus* is the carrier of this dangerous parasite. It is to be hoped that exhaustive feeding experiments similar to those I carried out in Madras will be conducted with *Herpetomonas infantum* and *Herpetomonas tropica*. However, I feel bound to say here that there is too great a tendency at present to cultivate these parasites in test-tubes; these experiments are undoubtedly highly interesting, yet they will not give us the clue as to how the parasites are transmitted from man to man. Feeding experiments with blood-sucking insects in the case of these herpetomonads are very difficult and tedious owing to the fact that unless a very good case is selected it is almost impossible to follow one or two developing parasites in the guts of the insects. Further, such experiments must be carried out with great precision, and the observer must possess a good working knowledge of the many harmless gut-flagellates which occur in nearly every insect. So far as I am aware no attempts have been made to discover the transmitting agent of *Herpetomonas infantum* or *Herpetomonas tropica*.

A NOTE ON THE TREATMENT OF SYPHILIS.[1]

BY G. G. STOPFORD TAYLOR, M.D. DURH.,
PHYSICIAN TO THE LIVERPOOL SKIN HOSPITAL.

IT is recognised that mercury is the antidote for syphilis in the primary and secondary stages, while iodide of potassium is usually prescribed alone in the tertiary stage, or combined with or given alternately with mercury. The method of administering mercury which I practise and advocate, though not to the exclusion of other methods, is that of the intramuscular injection of grey oil which contains 40 per cent. by weight of metallic mercury. It has many advantages over other methods, inasmuch as it is scientific, as the physician administers the dose himself, and therefore knows the exact amount which his patient is receiving, and as it is necessary to repeat these injections weekly the progress made by the patient may be observed and the physician is prepared for any complication or emergency which may arise.

Contradictory opinions have been expressed as to the pain caused by this method. All injections must necessarily cause a certain amount of pain, though in our practice it is rare to have any complaints. If we inquire, the patient will admit a certain amount of stiffness coming on two or three days afterwards. After a few injections, however, he gets quite accustomed to them and will tell you that he prefers the treatment to the everlasting pills and mixtures. Occasionally it happens that he will state before leaving the consulting-room that the last injection caused more pain at the moment than any previous injection. It is difficult to explain this unless we can assume that the needle has wounded a nerve. In four and a half years I have only found it necessary in one case to discontinue intramuscular injections with grey oil because of pain, and I am unable to explain why the same patient suffered as he said and why he submitted without a murmur to intramuscular injections of the sozoiodolate of mercury twice weekly into his deltoid muscles. Our experience in hospital practice is the same. No greater testimony to the value and comparative painlessness of the injections of grey oil can be adduced than the fact that syphilitic derelicts attend most regularly, and they ought to know. I mean by derelicts those who have wandered from practitioner to practitioner and from hospital to hospital and have experienced all methods of treatment without being cured.

Site of injection.—The gluteal region is by preference the most suitable because of the size and thickness of the muscles in this locality, but it is necessary to choose a spot sufficiently far removed from the great sacro-sciatic notch so as to avoid wounding any of the large vessels and nerves emerging therefrom. This is a point midway between the upper end of the gluteal furrow and the anterior superior spine of the iliac crest.

Method of injection.—The skin having been well and thoroughly cleansed with methylated spirit, the butt end of the needle is held firmly between the finger and thumb of the right hand and with a keen eye and a steady hand is quickly plunged into the buttock, with the point of the needle very slightly inclined outwards. It is well to wait 30 seconds to see if any blood flows from the needle before injecting the oil, or, better still, to exhaust it with an ordinary hypodermic syringe. The oil is then slowly injected and when the operation is completed the needle is again very quickly withdrawn so as to prevent, if possible, any of the mercury escaping from the muscle along the needle track. The part is then massaged for 30 seconds. No dressing is required.

The position of the patient during the operation is of importance. I always place him in a stooping posture, heels together, leaning with his hands on the end of a couch or chair to steady himself. The introduction of the needle is done so quickly that only the slightest prick is felt. No patient has ever fainted.

Bleeding.—Should any bleeding follow the insertion of the needle it must be withdrawn and re-inserted in another place. A drop or two of blood sometimes appears as the needle is withdrawn; this, however, is controlled by a few moments' pressure.

The dose of mercury given at each injection depends, first, upon the weight, activity, and habits of the patient; and secondly, upon his power of elimination of the drug by the kidneys. For an active man of from 12 to 14 stones in weight and in the early stages of the disease I prescribe 14 centigrammes. For a less active man, say of from 10 to 12 stones, eight centigrammes. For a woman usually seven centigrammes, though this is exceeded in urgent cases for the first three or four injections. From 10 to 12 injections constitute a course, after which a rest of two months is taken and then a repetition of the treatment is begun. Three courses a year for two years are my minimum; afterwards one or two courses annually according to circumstances.

The syringe which I use is that of Barthelemy; it is graduated in centigrammes, a complete syringeful holding in all 14 centigrammes, and as this amount of grey oil

[1] Part of a post-graduate lecture delivered at the Liverpool Skin Hospital.

contains 2·5 grains of metallic mercury by weight no mistake in the dose can be made. We prefer to use platinum needles. It is true that they are expensive and that the points soon become blunt with use, but the advantages are that they do not corrode under the influence of the mercury and therefore are easily sterilised. The length of the needles is one and three-quarter inches for general use, varying to suit the obesity of the patient.

The objections raised to this method of administering mercury are several, but it is a remarkable fact that the most strenuous opposition has proceeded from those members of the profession who have never tried it. The objections are abscesses, nodes, embolism or thrombosis, and fatal salivation. After four years' daily experience of this method we have never had or seen a case of abscess. In our early days we had a few nodes amongst hospital patients, but this was due to faulty technique, which we believe we have remedied by cleansing the skin with methylated spirit in preference to other antiseptics, and by using greater judgment in choosing needles of such a length as will place the oil deeply in the muscles, as a node can only form when the mercury remains immediately beneath the skin.

Subcutaneous nodes arising after injection of grey oil can only occur through some defect in the technique of the operation. This is confirmed by the fact that though I have given some hundreds of injections I have never had an accident amongst my private patients, but they have occurred in the practice of others, as I have witnessed, and as has been reported in the journals from time to time. Such an accident, if frequently repeated, is sufficient to condemn the method of intramuscular injections. The question arises, How are they to be avoided? First, by extreme cleanliness; and secondly, by using a sufficiently long needle and by taking care that it is pushed well home into the muscle on pushing down the piston of the syringe and thereby insuring that none of the oil has been left in the subcutaneous tissue, or otherwise a node, followed may be by an abscess, is bound to occur. If in spite of these precautions nodes have still occurred they have been due to faulty needles.

In order that what I mean by the word "faulty" may be understood I must draw attention to the manufacture of the needles. Steel needles are drawn as wire is. Platinum needles we used to believe were also drawn, but there is reason to think that the latter are rolled and the seams soldered, Now, solder consists of lead and tin, or silver and tin, and is rapidly eroded by mercury, whilst platinum and iridium are not; consequently, minute perforations occur through the solder by which the grey oil escapes into the subcutaneous tissue. These perforations may occur at any part in the shaft of the needle. A slit was discovered by Dr. R. W. Mackenna close to the mount; others were observed by myself close to the point. Now I believe these perforations occurred through not cleansing the needle immediately after it was used. "Faulty" platino-iridium needles have not as yet been given as a reason for nodal formation. I have used some of my platino-iridium needles for four years and have always cleansed them at once, and therefore I am convinced that owing to this precaution I have escaped the accidents previously referred to. I never use steel needles as they become eroded and are apt to break.

Embolism or thrombosis we have never seen. Slight salivation has occurred in a few hospital patients because of the unhealthy condition of their gums. In the cases of fatal salivation which occurred among the troops in the Egyptian command in 1901 I am of opinion that they arose, first, because the doses were too large and administered too frequently, and also that the patients were debilitated from alcoholism, dysentery, and malaria.[2] Smaller and less frequent doses are now recommended by the Army Medical Department and such is its confidence in the method that one and a half pounds of mercurial cream are supplied every week to the various military centres.

No matter what method may be adopted salivation may arise, but it rarely occurs in my private practice because I always have the patient's mouth attended to. In patients of the hospital class, the majority of whom have defective teeth and have never used a toothbrush in their lives, it occasionally happens as I have said, although they are supplied with mouth washes and tooth powders. Fournier gives four chief types of salivation: (1) inferior median gingivitis which affects the lower incisors; (2) peripheral gingivitis which affects a carious tooth or stump; (3) genial stomatitis affecting the mucous membrane of the cheek opposite the last lower molar; and (4) retro-molar detachment. This consists in the separation of the gum behind the last molar tooth which bleeds easily.

Caution.—Now it may happen that a patient is under treatment who at the same time is cutting a wisdom tooth and the symptoms arising from this being similar may lead his medical attendant astray.

The following is Lafay's formula of grey oil: mercury, 40 grammes; sterilised lanoline, 12 grammes; white vaseline, 13 grammes; and medicinal oil of vaseline, 35 grammes.

Intramuscular injections.—When the mercury is deposited in the muscles the absorption is very slow, as may be seen by radiographs taken from time to time. Some investigators have recorded that it has disappeared in a few days, but from radiographs taken by Dr. W. C. Oram and Dr. Mackenna in our laboratory mercurial shadows have been distinctly observed three weeks after the injection. Naturally, therefore, a good deal depends upon the radiographer and the apparatus. Having placed the mercury in the patient's gluteal muscles and *seen it there* we may now inquire how it is got rid of. Mercury may be said to be eliminated by three channels—viz., by the mucous membranes of the mouth, by the mucous membranes of the intestines, and by the kidneys, and therefore it is essential that these parts should be in a healthy condition, for if from any cause these emunctories are diseased trouble is almost certain to occur. For instance, ptyalism when the gums are unhealthy, diarrhœa if the patient is subject to looseness of the bowels or has had dysentery, and profound mercurial poisoning if the kidneys are diseased. It is, therefore, essential that in all cases and in all methods of administering mercury, the urine should be examined at intervals, so that we may know how the kidneys are doing their work and if the specific gravity is below 1015 we must proceed cautiously. The average time in which mercury has been found in the urine after a single injection is one week, though we cannot say that elimination has not been taking place before that, perhaps from the bowels, for we have one patient whose stools become more and more frequent in 12 hours after each injection and continue so for several days after each injection and, therefore, we never repeat an injection until his bowels have resumed their normal condition.

Analysis of urine for mercury conducted in my laboratory by Dr. Mackenna and Dr. Oram in 1906 and 1907–08 gave an average of from two and a half to three months as the latest periods in which mercury can be found after cessation of treatment, but this depends upon the length of the course.

The advantages of this method of treatment are convincing to my mind: (1) accurately measured doses of mercury are deposited in the muscles at regular intervals which undergo slow absorption and elimination, during which periods the blood and tissues in which the spirochætæ swarm are mercurialised—or, in other words, the spirochæta is in a mercurial bath; (2) the stomach is reserved for food; and (3) during the courses of treatment the patient is obliged to visit his medical attendant and is thus kept under control.

The detection of mercury in the urine.—The test for mercury in the urine is a long and laborious process and quite outside the work of a general practitioner. Fortunately, we can do without it, for if a 24 hours sample of urine is not below specific gravity of 1015 and is free from albumin and sugar we may take it for granted that the renal organs are working well.

Test for mercury (detection according to Stukowenkoff).—Five cubic centimetres of egg albumin are thoroughly rubbed in a mortar with an equal quantity of a saturated solution of sodium chloride and dissolved in 500 cubic centimetres of urine. The solution is then warmed on a water-bath until the albumin is completely coagulated. The precipitate is collected on a filter, dried between filter paper, and then rubbed in a mortar with about 10 cubic centimetres of concentrated hydrochloric acid. 40 cubic centimetres of hydrochloric acid are then added and the solution, in which a copper or brass spiral is placed, is allowed to stand 24 hours in a glass beaker or cylinder. The albumin and the mercury which has been collected by it are dissolved by the hydrochloric acid. The mercury forms an amalgam on the surface of the copper spiral. The spiral is washed first with cold and then with hot water, rinsed in alcohol and ether, and dried in the air. It is placed in a dry piece of narrow glass tubing which has been sealed at one end by melting.

[2] See Army Reports.

A few crystals of iodine are then placed in the tube and the tube is carefully heated with continuous turning from the lower to the upper end of the copper spiral. The mercury is thus sublimed, and, combining with the iodine, forms a brick-red ring of mercuric iodide. The width of the ring is, if the instructions are carried out, exactly proportional to the quantity of mercury, and a quantitative estimation is thus rendered possible. It is only necessary to have a scale, that is, a series of mercuric iodide rings obtained from definite quantities of mercury (1, 2, 3, 4, &c., milligrammes), and to compare the ring obtained with this scale. This method is very delicate; 0·0005 gramme of mercury can be clearly detected. If the ring is not clearly seen macroscopically the characteristic red crystals of mercuric iodide can be easily detected microscopically with a low power.

Finally, intramuscular injections are not as a rule suitable for children, neither are mercurials of any kind or form beneficial in parasyphilitic diseases such as locomotor ataxia and general paralysis; but in saying this one must differentiate between true syphilitic lesions of the brain and spinal cord, where they are of the greatest value.

Strict attention must be paid to the hygiene of the mouth. The teeth are to be brushed night and morning and the mouth rinsed very frequently during the day with a solution of acetate of alum: one ounce of alum with five ounces of distilled water, and one ounce of subacetate of lead with five ounces of distilled water. Mix the solutions and filter. For use dilute with 19 parts of water.

Treatment by inunction.—The mercury is to be absorbed by the skin as well as by inhalation of the volatilised metal. Inunction was one of the earliest methods of treating syphilis, but it fell into disrepute owing to the reckless way in which it was used. At Aachen, where this method is carried out systematically, at 6.30 A.M. the patient drinks three glasses of hot spring water; at 7.30 he has a hot bath which is followed by inunction, and breakfast is provided at 8.30. Afterwards the patient rises and takes light exercise in the open air till lunch at 1.30 P.M. More exercise is taken afterwards and three glasses of hot spring water are drunk. Dinner is served at from 6 to 7 P.M., the patient retiring to bed at 10 P.M. Three grammes of mercurial ointment containing 15 grains of metallic mercury are rubbed into the skin of the calves, the thighs, the back, the chest, and the arms for 20 minutes exactly by specially trained men. The change of site is to avoid irritation of the skin.

Another method is to spread from half a drachm to one drachm of mercurial ointment upon the abdomen before retiring to rest and to cover with a bandage or binder. On the next morning the skin is washed clean with soap and water. This is an excellent plan for treating congenital syphilis in infants, though of course a less dose diluted with lard is necessary.

The advantages claimed for inunction are (1) that there is no interference with the digestive functions, and (2) its painlessness. The objections are (1) that it is dirty and has sometimes excited attacks of acute dermatitis and (2) that it requires specially trained rubbers and for obvious reasons cannot be carried out in the homes of patients in this country.

Methods of administering mercury by the mouth.—The preparations usually employed are:—Hyd. cum cret. with or without Dover's powder; liq. hyd. bichlor.; pil. hyd. 3 grains; pil. Plummer. The disadvantages are: (1) that absorption is irregular; (2) that in some patients it appears to have no visible effect upon syphilitic lesions; (3) serious disturbance of the alimentary tract; and (4) that the average duration of treatment is two years.

Diet.—Generous diet is necessary as waste of tissue is increased, avoiding green vegetables, fruit, and spices which may cause irritation as the mercury renders the gastro-intestinal tract more sensitive.

Levy Bing states that when mercury is administered to syphilitic patients, the excretion of urea, the percentage of hæmoglobin, and the body weight are all increased. By noting one or more of these points during a course of treatment a certain amount of information may be obtained as to whether to continue mercury or not, an increase being an indication to continue and a decrease the reverse.

I conclude by a *résumé* of the special indications for the injection method. 1. When a rapid therapeutic effect is desired. 2. In cases of syphilis of the central nervous system. 3. In hot climates, when the gastro-intestinal system is more liable to be upset by the oral administration of mercury.

Soluble salts.—Advantages: any desired quantity of mercury can be introduced daily and is rapidly absorbed; its effects can be watched and the dose modified to suit each case. The special indications for soluble salts are: (1) tuberculous cases; (2) in cases of extensive caries; (3) in cases in which the liver and kidneys are not acting well; (4) in young children who tolerate injections of soluble salts better; (5) in eye cases; and (6) in debilitated people. Disadvantages: The great objection is the necessity of daily administrations, resulting in waste of time to the surgeon and the patient and a frequent recurrence of more or less pain.

Insoluble salts.—The object in using insoluble salts is to introduce into the system at definite intervals a quantity of mercury which shall act as a supply depôt and be gradually but continually absorbed. Advantages: (1) fewer injections; (2) no waste of time; and (3) inexpensive. Disadvantages: (1) should mercurial poisoning occur it is impossible to get rid of the mercury in the body (this rarely happens if the method is carefully carried out); (2) grey oil causes pain, but very little; (3) abscess is generally the result of sepsis; (4) the nodes are usually small and not painful and are due to subcutaneous injections; and (5) inflammatory reaction (this only occurs after the use of calomel, never after grey oil).

Liverpool.

ON A "TYPHOID CARRIER," TREATED SUCCESSFULLY BY THE INOCULATION OF TYPHOID VACCINE.[1]

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THE essential points in the history of this case are as follows. The patient, aged 26 years, while a servant in a house in Liscard, contracted typhoid fever seven years ago and was confined to bed for seven weeks. The girl at first stated that her recovery from this illness was complete and she was soon able to return to work. When questioned, however, she admitted that since her illness she had not been in robust health. She stated that she was easily tired, that she suffered from frequent headaches and occasional gastric disturbances. Her general condition evidently varied but her health was not altogether satisfactory. After her recovery from this acute illness she took another situation in Liscard, and after she was one month in this place the gentleman of the house developed typhoid fever about the end of March or the beginning of April. For the following two years she was in different situations but nothing of importance occurred. She then took a situation in Liverpool where the son of her mistress developed typhoid fever in March or April. Finally, she came to Belfast and while in service in this city four people in the same house developed typhoid fever at short intervals (June to July). In other words, in the course of seven years six people living in the same houses as the patient developed typhoid fever. One of us suspecting that she might be a "typhoid carrier" had her blood examined. It was found to give an imperfect Widal reaction in 1 in 50 dilution in one hour and a good reaction in lower dilutions. She was therefore advised to go into hospital that her condition might be investigated. She was admitted to the medical wards of the Royal Victoria Hospital on July 18th, 1908, and was placed under the care of Dr. W. Calwell who kindly allowed us every opportunity to investigate the case. A catheter specimen of her urine was obtained; it was

[1] A paper communicated to a meeting of the Belfast division of the British Medical Association on Dec. 16th, 1908.

opalescent in appearance, acid in reaction, had a specific gravity of 1022, and contained a trace of albumin. The centrifugalised deposit contained pus cells, bladder epithelium, and an enormous number of Gram-negative bacilli. The urine was then plated on Conradi-Drigalski medium, one cubic centimetre and 0·5 cubic centimetre of urine being placed respectively on each of the two plates. After the urine had been evenly distributed over the surface of the plates any excess was poured off. This procedure was adopted in all further examinations of the urine of this patient. The next day both plates were studded with innumerable colonies. These on further examination gave all the typical cultural reactions of Eberth's bacillus. Several samples of typhoid blood which were found to agglutinate the laboratory strain of typhoid also agglutinated this bacillus, recently isolated from the urine, in dilutions of 1 in 10, 1 in 50, and 1 in 100. The agglutination was not so complete in high dilutions as the agglutination of the laboratory strain. The blood of the patient agglutinated the laboratory strain well in dilutions of 1 in 10 and 1 in 20, but only partially in a dilution of 1 in 50 in one hour. The bacillus isolated from the urine gave a good reaction with a 1 in 10 dilution of the patient's blood, but in higher dilutions the reaction was imperfect. Several examinations of the urine and blood were made with the same results as those detailed above. In other words, the urine of the patient contained the typhoid bacillus in pure culture and in enormous numbers, while her blood gave a distinct but incomplete Widal reaction. The fæces were also examined by cultural methods for typhoid bacilli but none were found. The patient's temperature was found to vary from 98° to 100° F.; with a two-hourly chart the temperature was seen, as a rule, to touch 100° between 12 o'clock noon and 4 P.M. On admission her weight was 8 stones 13 pounds. For the first five weeks she was treated with tonics, urinary antiseptics, and rest.

During this period no improvement was noticed. Her weight fell from 8 stones 13 pounds to 8 stones 11 pounds; she still complained of gastric pain and of headaches; her temperature range was the same as on admission; from the same quantities of urine quite as many typhoid colonies developed. A vaccine was now prepared from the typhoid growth which had been isolated from her urine. It was standardised and sterilised in the usual manner. The opsonic index to her own bacillus was determined on several occasions by the formalin method and found to vary between 2 and 3. It was an easy matter to pick out this patient's blood from a series of controls by this opsonic test.

Treatment.—The following course of treatment was carried out:—

1. On August 25th 50 millions sterilised typhoid bacilli were inoculated. This caused a higher range of temperature for a day or two and considerable general malaise and headache. On Sept. 1st the urine was plated out as before and numerous typhoid colonies developed.

2. On Sept. 2nd 100 millions sterilised typhoid bacilli were inoculated; the general malaise, &c., were less marked than on the first occasion. On Sept. 16th the urine was plated out as before and the following is the note written on that date: "The colonies which developed on the plates were much fewer in number than on any previous occasion on which the urine had been plated out."

3. On Sept. 20th 200 millions were inoculated. On the 22nd we were at first disappointed to find on plating out the urine as before that quite as many colonies developed on the plates as ever before. The patient was now put on sodium lactate and her urine was made alkaline in this way. On Oct. 8th no typhoid bacilli developed; the urine was incubated but only a staphylococcus was found in the urine thus incubated.

4. On Oct. 9th 300 millions were inoculated. On the 20th no typhoid colonies grew from the urine.

5. On Oct. 23rd 500 millions were inoculated. On the 24th the urine was absolutely clear; no pus, no albumin, no colonies developed on the plates. On Nov. 21st the patient returned from the country to report herself and was kept three days in hospital. No typhoid bacilli were found in the urine or fæces.

6. On Nov. 21st 1000 millions were given. On the 23rd no typhoid bacilli grew on the plates. The fæces were again examined with a negative result. Her blood now gave a well-marked Widal reaction in dilutions of 1 in 50, 1 in 100, and 1 in 200 in one hour. During the period in which the patient was being inoculated she gradually improved in general condition and weight; her weight increased from 8 stones 11 pounds to 9 stones 7 pounds; her headaches, the feeling of tiredness, and her gastric pain all disappeared. It was noted by weekly weighings that immediately following the first two inoculations the patient lost a little in weight—the first two inoculations produced more general malaise than any of the others.

Remarks.—(*a*) In the year 1898 one of us investigated a case of cystitis in a patient under the charge of Sir John Byers in the gynæcological ward of the Royal Victoria Hospital. The cystitis was found to be due to the typhoid bacillus in pure culture and the blood of the patient gave a well-marked Widal reaction. The cystitis had persisted for at least three years without any of the general symptoms of typhoid fever. This case was fully reported in the *British Medical Journal* of Jan. 14th, 1899. Previous to this date several cases of abscess following typhoid fever from which after several years the typhoid bacillus had been isolated had been reported. The above case of typhoid cystitis, however, appears to be the first case in which it was shown that the typhoid bacillus may persist and be passed for many years in the urine when the patient is not suffering from the symptoms of typhoid fever. In other words, this was the first recorded case of what is now known as "a chronic typhoid carrier." Since that date the subject has grown in importance and many similar cases have been discovered and observed. Horton-Smith in his Goulstonian Lectures in 1900 was the first to suggest that such cases might afford the explanation of obscure outbreaks. Recent work has amply confirmed the importance of this suggestion.

(*b*) The apparent success of inoculation treatment in the case here recorded encourages us to think that vaccine-therapy may furnish in some cases at least an effective means of dealing with these most dangerous carriers of infection.

(*c*) It is now a well-recognised fact that chronic typhoid carriers may pass typhoid bacilli in their urine or fæces intermittently. It might therefore be objected that in the present instance the disappearance of the bacilli from the urine was not the result of the inoculation treatment but might have occurred without any such treatment and that the bacilli may at a later date be again found. We have endeavoured to arrange that this girl should report herself at intervals and that periodic examinations of her urine and fæces be made. In reply to this objection it may, however, at present be said that the patient was under observation in hospital for five weeks previous to beginning the vaccine treatment and that during this period no improvement in her general condition or in the number of the bacilli in her urine could be demonstrated. The improvement and final disappearance of the bacilli from her urine followed directly on the exhibition of the vaccine treatment. The patient herself was quite satisfied that the inoculations greatly improved her general health. Her blood also was shown to have acquired greater immunising power. We would also point out the interesting fact that while bacteria were still present they were greatly increased in number in the two or three days immediately following the inoculation of typhoid vaccine. This observation is in keeping with many observations in vaccine-therapy—i.e., during the negative phase following inoculation the bacteria in the focus of disease are greatly increased in number, provided the patient is still infected. It is, therefore, quite possible that an intermittent typhoid carrier at a period when the bacteria cannot be demonstrated in the urine or fæces may as a result of a typhoid inoculation pass typhoid bacilli in large numbers. We think this test should be applied in all suspected cases to demonstrate the presence or absence of infection.

(*d*) Another point of interest that arose in the treatment of this case may prove by future experiment worthy of attention. After the second inoculation, when the opsonic power of the blood had had time to rise, the urine was made alkaline by giving sodium lactate by the mouth, and we were of opinion that this procedure aided the action of the blood in clearing the urinary tract of typhoid bacilli. In a large number of cases of acute pyelitis with a rise of temperature it has been frequently observed that the temperature falls whenever the urine is made alkaline by such drugs as citrate of potassium, lactate of sodium, &c., and that this treatment alone may effect a cure in some cases. The essential point seems to

be the neutralisation of the urine as the temperature is apt to rise again if the urine is allowed to become acid. On the other hand, in chronic cases without a rise of temperature the neutralisation of the urine has usually little effect. With a view of determining the meaning of this interesting therapeutic result one of us did a series of experiments. The first series was performed by growing for a short period in the incubator the same quantities of an emulsion of coli bacilli in the same quantities of urine in a number of flasks the contents of which varied in reaction from faintly acid to faintly alkaline. The number of colonies was determined by plating out equal quantities from the flasks after 20 minutes' incubation. The results of this investigation were negative. The coli bacilli grew quite as well in a faintly alkaline urine as in a faintly acid. Strong degrees of acidity or alkalinity, however, inhibited their growth in both instances.

The following line of thought next suggested itself. An acute pyelitis differs from a chronic pyelitis in the fact that in the former case the patient is continually receiving auto-inoculations from the lesion while in the latter these auto-inoculations are absent. If the opsonic power of the patient with acute pyelitis be tested, it will be found to vary inversely with the temperature, and it would be as a rule much above normal, while in the chronic cases the opsonic power is usually below normal. The fact that acute cases frequently immunise themselves is due to such auto-inoculations, while the chronic cases persist indefinitely owing to the absence of such auto-inoculations. Bearing these considerations in mind the following is a sample from the second series of experiments. Opsonic determinations were made with the following :—

A.		B.	
Washed corpuscles...	... = 1 part.	Washed corpuscles...	... = 1 part.
Coli emulsion	... = 1 ,,	Coli emulsion	... = 1 ,,
Serum of coli case ...	... = 1 ,,	Serum of coli case ...	... = 1 ,,
Salt solution (acid)...	... = 1 ,,	Salt solution (neutral)	= 1 ,,

These two opsonic determinations differed only in the fact that in the case of A the medium was faintly acid, while in the case of B the medium was alkaline to litmus paper. In 50 leucocytes of the preparations made from A after 15 minutes' incubation 14 bacilli were phagocytosed, while in the case of B 196 were phagocytosed. Rendering the opsonic mixture acid had therefore resulted in a great decrease of the phagocytosis.

If this argument be correct, it would appear that the neutralisation of the urine in cases of acute pyelitis allows the raised opsonic power of the blood to act with greatest activity on the bacteria in the mucous membrane of the urinary tract since it then acts in a neutral or faintly alkaline medium ; the effect of this is a rapid fall of temperature and a decrease in the number of bacilli in the urine. It would also follow from this reasoning that when the immunising power of the blood has been increased by therapeutic inoculation, the phagocytosis of the bacilli should be aided by rendering the urine neutral or faintly alkaline.

We are greatly indebted to Professor W. St. Clair Symmers and to Sir A. E. Wright for the interest which they have taken in this case and for useful suggestions.

Belfast.

ON THE

MODIFICATION OF THE EXCITANT FOR LEUCOCYTES COMPOSED OF METHYLENE BLUE AND ATROPINE

IN ORDER TO REDUCE ITS POISONOUS EFFECTS AND TO RENDER IT SUITABLE TO BE TRIED MEDICINALLY.

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IN a former paper (1)* I have directed attention to remarkable stimulated movements which occur in leucocytes when blood cells are spread on agar jelly which contains methylene blue and atropine. This excitation is chiefly due to the stain and will occur without the alkaloid so long as the jelly is neutral. If it is alkaline, however, the presence of the alkaloid is essential, and in this latter case the stimulation of the cells is more constant but death follows in 20 minutes.

Since this combination of substances excites leucocytes it is reasonable to suppose that it may increase phagocytosis, in which case it may be useful to try it medicinally. But it cannot be conveniently employed as a jelly, and as the combination contains atropine it is extremely poisonous, for one cubic centimetre of jelly might kill a man. The present paper describes investigations I have made in order to reduce the poisonous effects of the excitant and to render it suitable both to be mixed with liquid blood and to be inoculated subcutaneously in cases of infective disease.

As described in the former paper, the stimulating jelly consists of a combination of one cubic centimetre of Unna's polychrome methylene blue (Grubler) which has previously been diluted with two volumes of water—i.e., 1 in 3 ; two cubic centimetres of a neutral solution containing 4·5 per cent. sodium citrate, 1·5 per cent. sodium chloride, and 0·225 per cent. atropine sulphate ; and three cubic centimetres of a 2 per cent. solution of agar. The jelly also contains a small quantity of sodium bicarbonate which varies with the temperature of the room and a scale was given for the addition of this alkali. The jelly is then boiled and a drop allowed to set on a slide. Blood is examined on this film under a cover-glass and in a short time all the leucocytes show the remarkable exaggerated movements. The cells absorb the stain from the jelly and their granules stain. The excitation consists of the extrusion and retraction of long curling pseudopodia which make the cells look as if they were exploring the crevices between the neighbouring red corpuscles. This continues until the stain diffuses into the cells sufficiently to stain the nuclei. Then death occurs. It is evident, therefore, that the jelly contains two poisons, atropine which is poisonous to man and Unna's stain which is poisonous to leucocytes, for it ultimately causes staining of the nuclei which is coincident with the death of the cells. Further, the effect of the salts sodium citrate and sodium chloride must be considered, for they profoundly affect the life of the cells.

The reason why the jelly contains sodium bicarbonate is that this alkali accelerates the diffusion of the excitant into the cells, the amount of alkali required varying with the temperature. Heat also accelerates diffusion (2) and since when the excitant is inoculated it will be necessary for it to be efficient at 37° C. the amount of alkali required at this temperature must be determined.

Lastly, there is the question of converting the stimulant which is contained in a solid jelly into a suitable liquid so that it can be mixed with blood. When the jelly is used the leucocytes are gently pressed into it and each cell has its share of jelly, and the stimulant with the aid of alkali diffuses from the jelly into the cell. When the cells are floating in a liquid which contains the stimulant in solution it is not so easy to cause it to diffuse uniformly into the individual cells. To enumerate these points again. It is necessary (1) to modify the stain since it kills leucocytes ; (2) since atropine is poisonous to man to substitute for it a non-poisonous material ; (3) to consider the effects of the salts, sodium citrate and sodium chloride ; (4) to consider the rate of diffusion of the stimulant into the cells at 37° C. ; and (5) to convert the stimulant into a liquid so that it may be effective when mixed with blood. I propose to take these items in the inverse order, points 4 and 5 being now considered together.

The arrangement of the excitant in liquid form so that it can be mixed with blood and remain effective at 37° C.—When the cells are spread upon agar, provided alkali is correctly added according to the temperature, every leucocyte becomes stimulated because each has its share of jelly. But if the stimulant is made in a liquid and the agar omitted it is necessarily diluted when mixed with blood. So that if the stimulant and blood are mixed in equal proportions the strength of all the ingredients of the stimulant should be doubled. But blood already contains sodium chloride, therefore it is unnecessary to double the strength of the salt, though experimentally better results are obtained if the liquid stimulant contains 1 per cent. The alkali, sodium bicarbonate, must not be doubled. The sole reason why it is contained in the agar is because, being an alkali, it accelerates diffusion of the stimulant into the cells. When the stimulant is actually mixed with blood it is mixed with

* The figures within parentheses refer to the bibliography at the end of the article.

an alkaline fluid, and the alkalinity of the plasma varies in health and disease. Further, at 37° C. the stimulant will diffuse into the cells more rapidly than at 20° C. Keeping these two points in view, I ascertained how much citric acid must be added to liquid stimulant to neutralise a sample of plasma when a volume of stimulant is mixed with an equal volume of blood. Then I added alkali to the stimulant and repeated experiments were made, adding more alkali each time until I obtained marked stimulation at a temperature of 37° C. By this it was found that a large amount of alkali has to be added to a neutral mixture of blood and stimulant to produce stimulation in half an hour—that is, when cells are resting on a jelly they only require a little alkali to cause stimulation, but when floating in a solution they require a large amount. I infer from this that agar jelly itself accelerates the diffusion of stimulant into the cells. It was also found that the amount of alkali required for the liquid stimulant is more than the original alkalinity of the plasma, consequently the alkalinity of the plasma can be utilised to replace part of the loss of acceleration of diffusion caused by the absence of agar.

Lastly, when the cells are spread upon agar they die in 20 minutes owing to the staining of the nuclei. As this short time leaves little margin for excessive alkalinity of the plasma I do not actually double the strength of the stain, and this allows the cells to live for nearly two hours at 37° C., even if the plasma is excessively alkaline. Yet this diminution of the concentration of the stain does not materially interfere with the stimulation.

The following formula is now arrived at: One cubic centimetre of stain which has previously been diluted with an equal volume of water; four cubic centimetres of a neutralised solution containing 4·5 per cent. sodium citrate, 1·5 per cent. sodium chloride, and 0·225 per cent. atropine sulphate; one cubic centimetre of water; and 0·2 cubic centimetre of a 5 per cent. solution of sodium bicarbonate. Blood is mixed with an equal volume of this mixture and incubated for half an hour at 37° C. A drop no larger than a pin's head is then placed on a slide and covered and the cover-glass may be gently pressed down. If examined at a temperature of between 20° and 25° C. it will be seen that the granules but not the nuclei are stained in the same manner as if agar were used, and in about a quarter of an hour the same remarkable exaggerated movements will occur and may continue for hours.

A remarkable phenomenon may now be recorded. If the slide, prepared as just described, is kept in the incubator it usually happens that no movements occur and the cells soon die, though occasionally very marked stimulation takes place. Likewise, if a slide is kept at 20° C. until exaggerated movements appear, and then if it is placed in the incubator the leucocytes will usually, but not always, retract their pseudopodia. On removal to a lower temperature, however, provided the cells are still alive, the leucocytes will resume their movements. I cannot explain this, though I am of opinion that the warm glass plays some part in it, for the cells will die rapidly at 37° C. when spread on a slide. As already mentioned, it may be frequently seen that marked movement will occur even if the slide be incubated.

The action of sodium citrate and sodium chloride.—It has been shown (2) that if blood cells are resting on jelly which contains only sodium chloride besides stain and agar the leucocytes are killed outright. If the experiment is repeated with jelly which contains sodium citrate and no sodium chloride death also follows rapidly. A combination of the two salts, however, allows the cells to live for several days when it is mixed with blood (1). When a solution containing 1 per cent. sodium chloride and 0·2 per cent. sodium citrate is mixed with an equal volume of blood and the life of the leucocytes measured by a procedure already published, it has been found that the cells will live for half an hour. They appear to live longest if the solution contains 3 per cent. sodium citrate and 1 per cent. sodium chloride, when they may live for three days. If it contains 8 per cent. sodium citrate death occurs in about one hour. Yet the most favourable combination of these salts appears to be poisonous, first, because if the solution is rendered alkaline the life of the cells is shortened, and secondly, because they will live longer at 30° C. than at 37° C. in citrate solution. Since alkalis and heat accelerate the diffusion of substances into cells, and since these two agents shorten life when the cells are resting in a solution of the salts, it appears that the shortening of life is due to the accelerated absorption of the combination. It may therefore be said that the combination is poisonous. On the other hand, stimulation will not occur without it.

The consideration of the poisonous effect caused by the atropine sulphate.—This salt does not appear to be very poisonous to leucocytes, for they will live for more than eight hours when a citrate solution which contains 0·007 per cent. atropine is mixed with an equal volume of blood. Its dose, however, is only one milligramme. Other alkaloids have been tried mixed with agar, and it has been found that pilocarpine sulphate and morphine hydrochloride are also effective in the presence of alkali. Strychnine and caffeine appear to have no effect. Atropine and pilocarpine are derivatives of pyridin; morphine is said to be a derivative of quinolin, but the latter is poisonous and causes collapse although it accelerates the stimulation of leucocytes. Pyridin is comparatively non-poisonous. It is a limpid, volatile, neutral liquid which when mixed with water gives an alkaline reaction to litmus but not to phenolphthalein. Though alkaline it does not appear to hasten diffusion, nor will it stimulate leucocytes in the presence of sodium bicarbonate, but it accelerates stimulation if everything is neutral, provided, of course, the stain is also present. After trying a variety of substances, piperazine, which is diethylenediamine, a substance closely allied to natural alkaloids, has been found to be suitable, for it stimulates leucocytes fairly constantly both in neutral and alkaline surroundings. Its dose is one gramme or less.

The reduction of the poisonous effects of the stain.—If Unna's stain is present in sufficient quantity to cause stimulation of the leucocytes it will ultimately stain the nuclei at 37° C. As staining of the nuclei involves death (1), it is the stain which is the most poisonous ingredient to leucocytes. Cells will live for hours with their granules stained, but if the concentration of the stain is increased it causes death which is coincident with staining of the nuclei. As already stated (3), I have been unable to determine whether staining of the nucleus causes death or whether death allows the nucleus to become stained. Since there is a relationship between the two it appeared reasonable to suppose that death might be due to a combination between chromatin and the colouring matter of the stain. The stain was therefore decolourised by the addition to it of 20 per cent. animal charcoal, shaking and filtration. It was found that the colourless filtrate contains the principle which stimulates leucocytes, although to a less extent, but does not kill the cells so rapidly.

Formula of stimulant suitable for subcutaneous inoculation.—To 70 cubic centimetres of Unna's polychrome methylene blue add 14 grammes of animal charcoal, shake well and filter. The filtrate should be coloured a very faint blue. To 50 cubic centimetres of the filtrate add 4·5 grammes of sodium citrate, 1·5 grammes sodium chloride, 0·04 gramme piperazine, and 100 cubic centimetres of water; total 150 cubic centimetres. Neutralise and sterilise in the autoclave. A sample may be tested by mixing it with an equal volume of blood in a capillary tube. After incubation for half an hour at 37° C. a drop should be examined between a slide and cover-glass. In about 20 minutes, at a room temperature of 23° C., the exaggerated movements should occur though the cells will appear quite unstained, and this movement may greatly exceed that seen on agar. It may be remarked that no alkali is present except that in the plasma; a little sodium bicarbonate or sodium phosphate may be added but it shortens the life of the cells. If neutral the onset of stimulation is delayed. At present I am trying it medicinally in a neutral condition. The stimulant loses its faint colour and becomes non-effective after two or three days.

Effect of the stimulant on the life of leucocytes.—Blood mixed with an equal volume and incubated was tested at intervals on stimulating agar to see if the cells were living or dead. All the cells were alive in five hours but about 50 per cent. were dead in six hours.

Effect of the stimulant on man.—30 cubic centimetres have been injected subcutaneously and are soon absorbed. The effect is remarkable. It almost invariably produces a reaction within half an hour. The temperature rises one or two degrees Fahrenheit and there is a corresponding rise in the pulse-rate and an increase in the number of respirations. Occasionally it causes persons to feel sleepy. The

reaction usually passes off in about an hour. The injection of 15 cubic centimetres into the median basilic vein of a man was followed by a violent rigor with a temperature of 104° F., which lasted for four or five hours and then passed off without harmful result. After this injection a sample of the same solution was plated and found to be sterile. Yet, so far as I can ascertain, any one of the constituents can be given separately without these results. Its effect on the number of leucocytes is also interesting. Within ten minutes of the inoculation of 10 cubic centimetres, the usual dose employed, there is an initial fall, sometimes of many thousands per cubic millimetre, in the number of leucocytes —a negative phase—and the negative phase corresponds to the rise in temperature. This is followed by a positive phase; the number sometimes runs up from 4000 or 5000 to 20,000 or 25,000 leucocytes, and this phase may reach a high figure in two or three hours. Occasionally the leucocytosis lasts for 24 hours and then the number gradually falls. When another dose is given there is the same negative followed by a positive phase.

Conclusions.

This comparatively non-poisonous stimulant for leucocytes is not so effective as the one which contains atropine, and the liquid stimulant, even if it contains atropine, is not so constant in its effects as when the agar preparations are used. Still, when the non-poisonous mixture is employed the leucocytes frequently show very marked movements which greatly exceed those seen on agar. Moreover, the pseudopodia wave about in different directions and the cells look as if they were searching for something. They frequently retract one pseudopodium and extrude another from a different part of their circumference, or after retraction the same pseudopodium may be again extruded, and this may be watched for hours. Sometimes the cells are fringed with extrusions and look like squids or tarantulas.

I cannot explain the fact that if the cells are resting on jelly they will absorb stimulant or stain more rapidly than if they are floating in a solution. This acceleration of diffusion does not appear to be affected by the concentration of the agar in a jelly, for its strength may be increased or diminished without altering the rapidity of staining.

The stimulation is a remarkable phenomenon to be seen microscopically, and I submit that it is most curious that a chemical mixture, or combination, or whatever it may be, which has a stimulating effect on individual leucocytes should also produce such an extraordinary effect when given subcutaneously. It is difficult to link up the phenomena. In observing the results of the administrating of this stimulant to patients and its possible therapeutic application I am working with Dr. C. J. Macalister, to whom I am greatly indebted for advice. The results we obtain will be communicated later. I am sure the stimulant can be greatly improved, and the results which we have already obtained will, I believe, warrant any attempt at improvement. Piperazine is not nearly so effective as atropine and I do not think that there will be much difficulty in finding a more active drug.

I wish to thank Dr. Charles Todd and Mr. J. G. Willmore, both in the Egyptian Government service, for rendering me assistance in some important points.

Bibliography.—(1) H. C. Ross: On a Combination of Substances which Excites Amœboid Movements in Leucocytes, THE LANCET, Jan. 16th, 1909, p. 152; (2) On the Death of Leucocytes, Journal of Physiology, vol. xxxvii., No. 4; (3) On the Cause of Achromasia in Leucocytes, THE LANCET, Jan. 23rd, 1909, p. 226.

Liverpool.

UNIVERSITY COLLEGE, LONDON.—A course of eight lectures on National Eugenics, in connexion with the Galton Laboratory will be given at University College, London, on Tuesdays, at 5 o'clock, beginning on Feb. 23rd. The first lecture will be given by Professor Karl Pearson on the Purport of the Science of Eugenics. On the four following Tuesdays the lectures will be given by Mr. D. Heron and will deal with the following subjects: Methods of Eugenic Inquiry, Transmission of Physical Characters in Man, Transmission of Psychical Characters in Man, and Inheritance of Disease and Deformity. The course will be continued in the third term, beginning on May 4th, when Miss E. Elderton will lecture on Effects of Kinship in Marriage and Comparison of Heredity and Environmental Factors. Full particulars of the lectures can be obtained from the secretary of University College.

TUBERCULOSIS IN CHILDREN,[1]

ESPECIALLY WITH REFERENCE TO TUBERCULOSIS OF LYMPHATIC GLANDS, AND ITS IMPORTANCE IN THE INVASION AND DISSEMINATION OF THE DISEASE.

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THE tables presented in this paper epitomise the results of an investigation of the post-mortem records of the Royal Edinburgh Hospital for Sick Children in the case of children dying from tuberculosis while in-patients of that hospital. The period covered by the records dates from February, 1883, to April, 1904, a little over 21 years. The successive pathologists responsible for the conduction of the examinations during that time were Sims Woodhead, Alexander Bruce, David Welsh, myself, and Stuart McDonald, so that it may be granted that the operations were skilfully performed and the important facts duly appreciated and accurately recorded.

The records for the 16 years up to 1899 formed the basis of a previous statistical paper by myself dealing with the channels of infection in tuberculosis and the probable ratio obtaining between infection by the alimentary and by the respiratory systems. This paper appeared in the Edinburgh Hospital Reports for 1900. In 1904 I reinvestigated the records, adding cases which had come to post-mortem examination during the intervening five years. I studied them with care for the third time in 1907 and presented a paper based upon them at the Congress of the Royal Institute of Public Health held at Douglas, Isle of Man, in July of that year. During the present summer (1908) I have again revised the whole series of cases, even more minutely than before and with still greater detail. The present paper is thus the product of an investigation, conducted four times, at long intervals, the thrice-repeated revisal tending to greater accuracy in the final results.

During the 21 years a total of 1085 post-mortem examinations were conducted, and of them 421, or 38·8 per cent., were upon children who had died from tuberculosis. The records of 413 cases were sufficiently full for analysis and with these this paper is concerned. Apart from this the cases were not selected in any way. Infants under one year of age were not admitted to the hospital until towards the close of 1888, so that the cases fall naturally into two groups or series, the first including all cases up to the end of 1888 and the second including those occurring in the years 1889–1904. In the former period 250 post-mortem examinations were conducted, of which 105 (41·2 per cent.) were upon cases of tuberculosis; in the latter 308 cases (36·8 per cent.) of tuberculosis were met amongst 835 cases of all kinds investigated in the post-mortem room. Incidentally it may be noted that the second group, even though it contains a larger percentage of young children in the first two years of life, represents a fall of nearly 5 per cent. in the number of deaths from tuberculosis, relatively to the total number of deaths from all causes. A study of the tables will show that with the exception of this slight difference and the greater prevalence of tuberculosis of the lymphatic glands in the first series than in the second, in most other respects they correspond more or less closely, and for most purposes the two series might have been combined in one large series embracing the whole 413 cases.

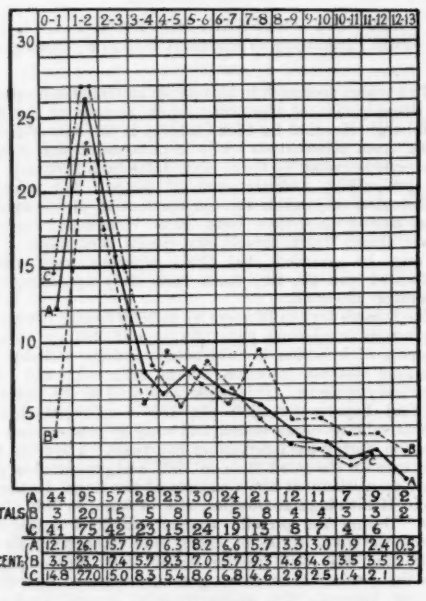
It must be borne in mind that these are post-mortem statistics, and while it is perfectly legitimate to employ them in drawing certain general conclusions they must not be taken as even indicating with any approach to accuracy the conditions prevailing during life, but they show clearly the great importance of the lymphatic glands in the invasion and dissemination of tuberculosis. It is from this aspect principally that I shall view the subject of tuberculosis on this occasion.

Ages of the Cases.

The accompanying chart is designed to show the percentages of the cases which died at the various ages up to 13 years. The ages were available in 363 cases. Out of that number

[1] A paper read before Section IV. of the International Congress on Tuberculosis at Washington, D.C., on Oct. 1st, 1908.

247, or 68 per cent., were under five years of age, and 116, or 31·9 per cent., were over that age. 196, or 54 per cent., died during the first three years of life, and only two out of the whole number were over 12 years of age. The highest mortality occurred in the second year of life in both series. Following this there is a rapid decline to the fourth year in the first series and to the fifth year in the second series, succeeded by a transient rise in the fifth year in the first and in the sixth year in the second series. If the totals at each year are combined and percentages taken, a single wave, having its maximum in the sixth year, replaces these two secondary rises, and thereafter in the second half of the period of 13 years the ratio falls steadily except for a slight rise in the twelfth year.



		0-1	1-2	2-3	3-4	4-5	5-6	6-7	7-8	8-9	9-10	10-11	11-12	12-13
TOTALS	A	44	95	57	28	23	30	24	21	12	11	7	9	2
	B	3	20	15	5	8	6	5	8	4	4	3	3	2
	C	41	75	42	23	15	24	19	13	8	7	4	6	
PERCENT.	A	12.1	26.1	15.7	7.9	6.3	8.2	6.6	5.7	3.3	3.0	1.9	2.4	0.5
	B	3.5	23.2	17.4	5.7	9.3	7.0	5.7	9.3	4.6	4.6	3.5	3.5	2.3
	C	14.8	27.0	15.0	8.3	5.4	8.6	6.8	4.6	2.9	2.5	1.4	2.1	

Chart to show ages of 363 children who had died from tuberculosis, in percentages of the numbers occurring in each year. A, The two series combined (363 children). B, The first series (86 children). C, The second series (277 children). Ordinate gives percentages; abscissa gives ages.

TABLE I.—*First Series.*

Lymphatic Glands.

Tuberculous in 97 out of 105 cases (92·4%).

Mediastinal glands affected	in	87 cases	(82·8%)
Abdominal ,, ,, ...	,,	71 ,,	(67·6%)
Mediastinal and abdominal together ...	in	61 cases	(58·1%)
,, alone	,,	26 ,,	(24·7%)
Abdominal ,, ...	,,	10 ,,	(9·5%)
		97	

TABLE I.—*Second Series.*

Lymphatic Glands.

Tuberculous in 243 out of 308 cases (78·8%).

Mediastinal glands affected	in	194 cases	(62·9%)
Abdominal ,, ,, ...	,,	150 ,,	(48·7%)
Mediastinal and abdominal together ...	in	101 cases	(32·1%)
,, alone	,,	93 ,,	(30·2%)
Abdominal ,, ...	,,	45 ,,	(14·6%)
Thorax not examined	,,	4 ,,	(1·3%)
		243	

Table I. (First and Second Series) shows the number of cases out of the whole 413 in which the lymphatic glands were tuberculous to the naked eye. Doubtless the percentages would have been considerably increased had the glands in every case been examined microscopically.

Pathologists are well aware that early proliferative changes, characteristic of the tuberculous process, with demonstrable tubercle bacilli, often to be found only after a prolonged search, can be detected in apparently non-tuberculous glands in tuberculous children, as well as in children to all appearance free from such infection. Moreover, it is also accepted as proved that tubercle bacilli frequently lie "latent" in lymphatic glands in tuberculous or healthy children, without inducing any proliferative changes and only detectable by the tuberculosis they produce when inoculated into experimental animals. One of the best summaries of the work carried out on these lines by numerous observers is given by Rabinowitsch.[2] She points out that in feeding experiments latent bacilli are more often found in the mesenteric glands than in the thoracic.

The first table in my first series shows that in only eight cases out of the 105 examined were the lymphatic glands unaffected. In the great majority of the cases in which the glands were affected both mediastinal and abdominal glands were attacked. In the remaining cases, in which the disease was localised to one or other of these groups of glands, the thoracic were affected twice as often as the abdominal. In the second series, while in a large percentage of cases—nearly half—both thoracic and abdominal glands were simultaneously affected, the larger number showed the disease localised to one or other of these groups, and of these the thoracic glands were affected alone in twice as many cases as the abdominal, just as in the former series. The subsequent tables show that, from the standpoint of dissemination of tuberculosis throughout the body, the thoracic gland tuberculosis is the more important and common.

TABLE II.—*First Series.*

Tuberculosis of the Mediastinal Glands (87 Cases).

		Cases.
Associated with pulmonary excavations—		
Cavities old	14	
,, recent	19	
Both varieties	2	
	—	35
Associated with tuberculous broncho-pneumonia or caseous areas only—		
Tuberculous broncho-pneumonia	17	
Caseous areas	5	
Both conditions together	3	
	—	25
Associated with miliary tubercles only in the lungs		8
With early caseation and miliary tuberculosis in lungs		2
With tuberculous broncho-pneumonia and miliary tuberculosis		4
With ulceration into the bronchus—naked eye		2
Without evident tuberculosis of lungs		11
Total		87

TABLE II.—*Second Series.*

Tuberculosis of the Mediastinal Glands (194 Cases).

		Cases.
Associated with pulmonary excavation—		
Cavities old	19	
,, recent	25	
Both varieties	9	
	—	53
Associated with tuberculous broncho-pneumonia or caseous areas only (no excavation)—		
Tuberculous broncho-pneumonia	19	
Caseous areas	18	
Both conditions	5	
	—	42
Associated with miliary tuberculosis only in lungs...		57*
With caseous areas and miliary tuberculosis in lungs		10
With tuberculous broncho-pneumonia and miliary tuberculosis in lungs		3
With old interstitial tuberculosis		1
Apparently secondary to tuberculosis of the thymus gland		1
Without evident tuberculosis of the lungs		27
Total		194

* In 28 of these there was local spread from the glands

Table II. (First and Second Series) deals with visible tuberculosis of the mediastinal glands, including root, bronchial and tracheal, anterior and posterior mediastinal glands, particularly the first two groups, and shows its relationship to tuberculosis of the lungs. It will be at once noticed that in a comparatively small proportion of the cases, older lesions to which the glandular condition was probably secondary were present in the lungs, whereas in the majority of cases more recent

[2] Berliner Klinische Wochenschrift, 1907, S. 35.

pulmonary tuberculosis, designated as "tuberculous broncho-pneumonia," "rapid caseation," "caseous pneumonia," "miliary tuberculosis," &c., was present. These lung conditions were certainly, in many cases at least, secondary to the disease of the glands. This bears out the accepted opinion that in very young children—and the majority of those examined were under five years of age—primary tuberculosis of the lungs is not at all common. It is also interesting to note that in 11 cases out of 87 in the first series, and in 22 cases out of 194 in the second series, there was no evident lesion, either primary or secondary, in the lungs.

TABLE III.—*First Series.*

Tuberculosis of Abdominal Glands (71 Cases).

Glands caseous, accompanying intestinal ulceration—		Cases.
Old excavation of lung	9	
Recent excavation, evidently primary	7	
Recent excavation, relation to intestinal ulceration doubtful	1	
Ulceration primary	16	
Ulceration more recent than caseation of gland; no excavation of lung	4	
Thorax not examined	1	
	—	38
Caseation of glands *without* any intestinal ulceration—		
Old excavation of lung	3	
Recent excavation of lung	6	
No excavation of lungs	24	
	—	33
Total		71

Excavation of lungs, *without* ulceration of intestine, occurred in 15 cases (out of 34 cases showing excavation of the lungs). In eight of the 15 cases tabes mesenterica was present, in seven being evidently secondary to the excavation.

TABLE III.—*Second Series.*

Tuberculosis of Abdominal Glands (150 Cases).

Glands caseous, accompanying intestinal ulceration—		Cases.
Old excavation of lung	13	
Recent excavation, evidently primary	9	
Recent excavation, probably secondary	4	
Ulceration of larynx	1	
Ulceration and matting of intestine	12	
Perforating ulcers and matting of intestines	6	
Ulcers evidently primary, no matting, no lung tubercle; or only miliary tubercle or early tuberculous broncho-pneumonia	11	
Early ulceration: advanced caseation of glands in thorax and abdomen; no excavation of lung; occasionally miliary tubercles; possible double infection	19	
Of doubtful origin	3	
	—	78
Glands caseous; *no* accompanying intestinal ulceration—		
Excavation of lungs	17	
Old fibro-caseous nodules in lungs	6	
No excavation of lungs	49	
	—	72
Total		150

Excavation of lungs, *without* ulceration of intestine, occurred in 27 cases (out of 72 cases with excavation). In 14 of the 27 tabes mesenterica was present, in 13 being evidently secondary.

Table III. (First and Second Series) analyses the cases in which the abdominal glands were visibly tuberculous, and gives valuable indications of the relationship of tabes mesenterica to tuberculosis of the lungs on the one side and to ulceration of the intestine on the other. It shows that in nearly half of the cases in which the abdominal glands were tuberculous there was no ulceration of the intestine, and, moreover, that in a large number of these cases there was no excavation of the lungs—24 in the first series and 49 in the second series.

If one now examines all the cases in the whole 413 cases under review in which excavation of the lungs had occurred —106 (34 + 72) in all—it is found, as indicated in the notes attached to Table III., that 42 (15 + 27) presented no sign of ulceration of the intestine, but in 22 of these the abdominal glands were caseous, in 20 this condition being evidently secondary to the lung excavation—7 in the first series and 13 in the second. The tables also give support to the opinion that multiple infection may take place, for example, in cases in which, without excavation of the lungs, ulceration of the intestine may exist of a date later (more recent) than the tuberculosis of the abdominal glands

TABLE IV.—*First Series.*

Ulceration of Intestine without Excavation of Lungs (36 cases = 24·7 %)

	Cases.
Old caseous nodules in lungs	3
Tuberculous broncho-pneumonia or active caseation in lungs	14
Miliary tubercles in lungs	5
Apparently no tuberculosis in lungs	6
Abdominal glands affected in	20
Mediastinal glands affected in	21*
Abdominal and mediastinal glands affected together	17

(Therefore, abdominal *alone* in three cases and mediastinal *alone* in four cases.) Associated with tuberculous meningitis in 11 cases.

* 13 with tuberculous broncho-pneumonia or active caseation and three with miliary tubercles in lungs.

TABLE IV.—*Second Series.*

Ulceration of Intestine without Excavation of Lungs (60 cases = 19·4 %).

		Cases.
Tuberculous broncho-pneumonia	1	
Miliary tuberculosis: perforated intestinal ulcer	1	
Caseous abdominal glands—		
Active caseation in lungs	6	
Miliary tubercles in lungs	10	
Old caseous nodules in lungs	3	
No evident tubercle in lungs	7	
	—	26
Caseous mediastinal glands—		
Recent caseation in lungs	1	
	—	1
Caseous abdominal *and* mediastinal glands—		
Active caseation in lungs	14	
Miliary tuberculosis, lungs	14	
Old caseous nodule in lung	1	
No evident tubercle in lungs	2	
	—	31
Total		60
Tuberculous meningitis—		
Active caseation in lungs	12	
Miliary tuberculosis in lungs	11	
Old caseous nodule in lung	1	
No evident tubercle in lungs	4	
	—	28

Table IV. (First and Second Series) is to be taken as complementary to Table III. It analyses all the cases, out of the 413, in which ulceration of the intestine had occurred without pre-existing excavation of the lungs. It is remarkable that no fewer than 86 cases come under this category, or 20·8 per cent. of the whole. Even allowing for a large margin of error, there would still remain sufficient proof that, in Scotland at least, primary ulceration of the intestine occurs frequently. Taking the two series together it is seen that in these cases the abdominal glands were more often tuberculous than the mediastinal, though in many cases both groups were affected, and, secondly, that the fatal event in nearly half of the cases was due to tuberculous meningitis. It is hardly necessary to insist that these observations have no bearing on, or reference to, the question of the nature or source—bovine or human—of the tubercle bacillus causing the lesions. These tables, from their very nature, cannot give any indication in that direction.

TABLE V.—*First Series.*

Tuberculous Meningitis. In 41 Cases out of 105 (39 per cent.).

Primary focus apparently in—		Dissemination apparently from active secondary changes in—	
Mediastinal glands	14	Lung: acute tubercle, broncho-pneumonia or active caseation	6
		Softening mediastinal glands, no tubercle in lungs, or miliary tubercles only	8
Abdominal glands	4	Lungs	3
		Softening abdominal glands	1
Mediastinal and abdominal glands	2	Lungs	1
		Softening glands	1
Excavation of lungs	6	Lungs	5
		Softening mediastinal glands	1
Intestinal ulceration	9	Mediastinal glands	2
		Abdominal "	6
		Mediastinal and abdominal glands	1
Of doubtful origin and dissemination			3
Large cavity lung: early ulceration of intestine—			
Some mediastinal and abdominal glands calcareous			1
Glands caseous in neck, groin, mediastinum, and abdomen, with early excavation of lung and ulceration of intestine			1
Doubtful whether disease of lungs or bronchial glands primary			1
			41

In 12 of these cases there were tuberculous caseous masses in some part of the brain.

TABLE V.—*Second Series.*

Tuberculous Meningitis. In 143 cases out of 308 (46·4 per cent.).

Primary focus apparently in—		Dissemination apparently from active secondary changes in—	
Mediastinal glands	62	Lungs	9
		Mediastinal glands	49*
		Abdominal ,, ...	4
Abdominal glands	9	Lungs	1
		Abdominal glands	8
Mediastinal and abdominal glands	23	Lungs	8
		Mediastinal glands	11†
		Abdominal ,, ...	1†
		Both groups affected	3‡
Excavation or old focus in lungs	9	Lungs	2
		Intestinal ulcer	1
		Mediastinal glands	3
		Abdominal ,, ...	2
		Both groups affected	1
Acute tuberculous broncho-pneumonia			3†
Intestinal ulceration...	9	Ulceration...	2†
		Mediastinal glands	3
		Abdominal ,, ...	4†
Of doubtful origin and dissemination...			20†
Possibly from tuberculous disease of bone			8†

* Tuberculous "tumour" in three of these cases in the brain.
† Tuberculous "tumour" in one of these cases in the brain.
‡ Tuberculous "tumour" in two of these cases in the brain.

Table V. (First and Second Series) analyses the cases of tuberculous meningitis and details the immediate foci from which, so far as could be determined, the spread of tubercle had taken place to the meninges. It may be allowed that all, or practically all, cases of tuberculous meningitis have a fatal termination, so that this table may be taken as conforming more closely to clinical experience than the others I have presented. It will be seen that in the great majority of cases the lymphatic glands had provided the focus from which dissemination has taken place with tuberculous meningitis as the important result, and that the thoracic groups had been more frequently implicated than the abdominal. It is worthy of note that only in a few cases could one determine that excavation of the lungs or ulceration of the intestine had proved the immediate focus from which the spread had taken place. The last tables showed that in many cases of apparently primary ulceration of the intestine, tuberculous meningitis supervened, but in the majority of these the actual focus whence the disease had spread to the meninges appeared to be furnished rather by the associated, broken down caseous lymphatic glands. The relative importance of the intestinal ulceration and the glandular tuberculosis cannot be determined absolutely in all these cases after the lapse of so many years.

Now, supposing that the great majority of glands affected with tuberculosis really did contain the "bovine" bacillus, as some authorities maintain, we should have to conclude that the majority of these cases in which tuberculous meningitis had caused death had been infected with "bovine" bacilli. The necessary corollary would be that most of these cases, forming altogether 44·5 per cent. of the whole number, had been infected from a bovine source. The recent reports of the British Royal Commission on tuberculosis show, however, that the views of such authorities are erroneous and that bacilli of both types—"human" and "bovine"—can be separated from caseous lymphatic glands, whether abdominal or mediastinal. Eastwood[2] divides his strains of tubercle bacilli into five grades, which lessen in virulence for bovines, as their growth upon nutrient media becomes more luxuriant. These characters are to be taken as in a general way separating the strains into the bacilli of "bovine" type and those of "human" type. The tables he has drawn up show that tubercle bacilli corresponding to these five grades have been separated from lymphatic glands taken from all parts of the body, in 13, 6, 9, 13, and 10 cases respectively.

Summary.

1. 1085 cases came under review, of which 413 died from tuberculosis. These cases were examined in two series, the first containing 105 and the second containing 308 cases.

2. The ages of the cases varied from three months to 13 years, approximately 68 per cent. being under five years of age.

3. The lymphatic glands were tuberculous in 97 cases (92·4 per cent.) in the first series and in 243 cases (78·8 per cent.) in the second series. The mediastinal glands were more frequently affected than the abdominal glands, and dissemination took place more frequently, apparently, from the former group.

4. Tuberculosis of the mediastinal glands was commonly unaccompanied by primary tuberculosis of the lungs, but was frequently accompanied by recent tuberculosis of these organs, in many cases evidently secondary to the gland tuberculosis.

5. In nearly half of the cases of tabes mesenterica there was *no* ulceration of the intestines and in one-third of the cases there was *no* excavation of the lungs, although in some of them the lungs showed early manifestations of tuberculosis. In a number of cases excavation of the lungs was not followed by ulceration of the intestines, although in about half of such cases tabes mesenterica had resulted, the excavation being of some standing.

6. Primary ulceration of the intestines, in absence of any previous excavation of the lungs, was frequently found. It was usually accompanied by caseation of lymphatic glands, mediastinal or abdominal, or both simultaneously. In a large proportion of these cases the immediate cause of death was tuberculous meningitis.

7. Death was due to tuberculous meningitis in 44·5 per cent. of the cases. Apparently the dissemination had taken place in the majority of the cases from caseous lymphatic glands, and more often from the mediastinal than from the abdominal groups. In 24 cases of tuberculous meningitis caseous nodules were found in some part of the encephalon but these had not given rise to the meningeal condition in every instance.

8. These tables deal with children of the poorer classes, who form the great bulk of the patients treated in the Royal Edinburgh Hospital for Sick Children. It would be interesting to know in what respects, if at all, statistics dealing in a similar manner with children of the better classes would disagree with those given above.

9. In view of the wide divergencies which appear in statistics emanating from different countries the only rational conclusion to be arrived at is that these differences depend not on the manner of treating the material but upon *the material itself*. Statistics, therefore, representing the conditions prevailing in any one country should not be considered as applicable to the conditions prevailing in any other country, seeing that the circumstances and environment, hygienic and social, under which the inhabitants of that country live may differ widely in many important respects.

Edinburgh.

[2] Royal Commission on Tuberculosis, Human and Animal. Second Interim Report, 1907, Part II., Appendix, vol. iv., pp. 227 to 233.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

PATHOLOGICAL SECTION.

Some Hereditary Syphilitic Affections of the Nervous System.—Microscopic Sections of the Aorta of King Menephtah.—Phosphorus Poisoning in a Rabbit.—Left Ureter Dilated without Obvious Mechanical Obstruction.—Disseminated Lobular Necrosis of the Liver with Jaundice.

A MEETING of this section was held on Jan. 19th, Mr. S. G. SHATTOCK, the President, being in the chair.

Dr. PIETRO RONDONI of Florence read a paper on Some Hereditary Syphilitic Affections of the Nervous System. He narrated the details of two cases of juvenile general paralysis and one of syphilitic brain disease. Juvenile general paralysis was often observed in children who had already presented some deficiency in the outflow of intellectual faculties. In the first case one of the chief histological characters of general paralysis was perivascular infiltration with plasma cells and lymphocytes especially marked in the cortex. Those changes were most marked in the basal ganglia and in the white matter between them. He suggested the systematic examination of the basal

ganglia in cases of general paralysis; the degenerative changes in the cortex were fairly marked and were certainly responsible for the symptoms observed in his case. In the second case the microscopic changes showed numerous large plasma cells in the adventitia sheaths of the vessels of the cortex, the pia mater being also infiltrated. Some rod cells were present; there was proliferation of the small vessels, with increased vascularisation of the brain and degenerative changes in the walls of the vessels. The degenerative changes in the nervous elements of the brain were scattered everywhere. In the third case histological examination revealed two forms of morbid change, one a diffuse degeneration of the cortical neurons and the other a change in the vessels of the base of the brain which could be described as a diffuse arteritis with predominance of the lesions in the interna. He considered that in this last case they were dealing with a form of syphilis hereditaria tarda of the nervous system. He concluded that in this last case progressive general paralysis must be excluded because the following histological changes considered necessary for the diagnosis of general paralysis were absent—viz., perivascular infiltration with plasma cells and lymphocytes, the existence of rod cells, marked neuronic decay, and characteristic glia proliferation.—Dr. F. W. MOTT said that in working at sleeping sickness he concluded that there were appearances which suggested that the plasma cells might come from the endothelial cells or from the lymphocytes. He had seen the same appearances in general paralysis. He considered the existence of plasma cells around the vessel was very suggestive of syphilis or trypanosome affection. It was a mistake to say that the appearance was diagnostic of general paralysis, though that was a natural conclusion because those who made the statement had not seen sleeping sickness. He had 50 blocks cut from various brain diseases in the laboratory and told his assistant to stain them and put them under the microscope and he (Dr. Mott) would pick out the general paralysis and sleeping sickness cases from the microscopical appearances. That was done and he succeeded in picking out the 13 cases of general paralysis and the two of sleeping sickness. The importance of the paper was the discovery of the changes in the perivascular lymphatics and the basal ganglia. The change was expected because of what had been found in sleeping sickness. General paralysis of the insane was a wasting disease of the whole nervous system but of the cortex principally, as that was the last to come and therefore the first to go. Another very important matter in the paper was the simple method of staining neuroglia which Dr. Rondoni had described. It showed the fibrils in a remarkable manner.—Dr. RONDONI, in answer to the PRESIDENT, said that he regarded the differentiation brought about by the stain as due to a chemical difference in the fibrils.

The PRESIDENT exhibited microscopic sections of the Aorta of King Menephtah, the reputed Pharaoh of the Exodus. The President had made them from a piece of the aorta sent to the Royal College of Physicians of London by Professor G. Elliot Smith who unwrapped the mummy, on the instructions of M. Maspero, Directeur Général du Service des Antiquités de l'Egypte. The mummy was found in the tomb of Amenhotep II., Thebes. The sections showed the picture typical of senile calcification of the aorta, the bony, parallel, elastic lamellæ being perfectly preserved, and the interlamellar material thickly strewn with calcium phosphate. Menephtah was an old man.

Sir THOMAS OLIVER and Dr. RAE GIBSON showed some lantern slides illustrating a case of Phosphorus Poisoning in a Rabbit. Phosphorus had been administered to the animal in minute doses. The motor cortex of the rabbit showed changes in the shape, structure, and staining reactions of the cells. With Nissl's method many of the cells were well stained and appeared healthy. In marked contrast, however, to these cells were others which showed changes; many of the pyramidal cells appeared larger and more circular and had a swollen look. Many of these cells were vacuolated, sometimes as many as six vacuoles appearing. Other cells were diminished in size with their outline blurred and indistinct, while others presented a wrinkled appearance with interrupted envelope. The nuclei in some cells were swollen and distorted, in others shrunken, in some displaced in position, and in others not visible at all. In the swollen cells they noted changes in the Nissl bodies; instead of the customary mosaic pattern there was an appearance of fine dust or a homogeneous aspect. The apical processes of the cortical cells were very much distorted and were twisted, giving them a cork-screw appearance. In the spinal cord appearances similar to those noted in the cerebral cortex were present, but here the changes were, if anything, more marked. The degenerated or shed cells were most numerous and the same characteristic of a swollen badly staining cell lying beside an apparently normal cell was noteworthy. But here the shadow cells were more numerous. Various intermediate changes were present, some showing merely a slight faintness in the staining of the Nissl granules, while the cell envelope and nucleus appeared normal. Other cells seemed almost completely degenerated, the Nissl granules had undergone chromatolysis, the cell was filled with fine dust, the nuclei were unstained and eccentric, and the envelope looked quite disintegrated. Here and there in the substance of the cord minute hæmorrhages were evident; these were by no means numerous and were very small. Some of the cells showed a twisting of their processes, but this was by no means such a marked feature as in the cells of the cerebral cortex. Sections of the sciatic nerve were also examined but no changes worthy of note were detected.

Dr. C. R. BOX communicated two instances in which the left ureter was dilated without obvious mechanical obstruction. He stated that the ureter was rarely if ever dilated without a similar change in the renal pelvis, and the cases which he recorded proved no exception to the rule. In one of them chronic ureteritis and pyelitis were present. Possibly swelling of the mucosa with, perhaps, superadded spasm had during the acute stage been sufficient to obstruct the narrow extremity of the duct. The other case presented no signs of inflammation and Dr. Box speculated whether the theory of mucosal hypo-æsthesia which Mr. Shattock advanced at the last meeting, to explain idiopathic dilatation of the bladder, were also applicable to a like condition occurring in the ureter.

Dr. F. PARKES WEBER read a paper on a case of Disseminated Lobular Necrosis of the Liver with Jaundice ("hepar necroticum cum ictero" of Curschmann and H. Oertel) and a case of Acute Hepatic Atrophy in Secondary Syphilis. The first case was that of a man, aged 25 years, who suffered from intense chronic jaundice due to carcinoma in the head of the pancreas. Ascites was present and there was much fever. Post-mortem examination showed the presence of disseminated "islands" of necrosis in the liver of the kind described by Curschmann in Germany (1899) and afterwards by Oertel in America. The central portions of these necrotic areas were often deeply stained with bile-pigment and in many of them a subsequent small cell infiltration had taken place. The present case differed somewhat from those previously described in that the jaundice was due to cancerous obstruction of the common bile-duct. The second case was that of a man, aged 22 years, who died from acute hepatic atrophy, with clinical signs of icterus gravis supervening on those of ordinary jaundice. He gave a history of having been treated for a hard chancre not long previously. At the necropsy the liver weighed only 39 ounces and appeared too flaccid. In some parts, especially in the marginal zones of the lobules, the liver cells had practically disappeared, leaving only a meshwork of the ground-substance or supporting tissue, composed of the walls of the capillaries, &c. In most parts the hepatic cells appeared shrivelled, with their nuclei sometimes small and pycnotic or sometimes not differentiated at all from the cytoplasm (karyolysis). The shrivelled cells were lying loosely in compartments, considerably separated from each other. In other parts the hepatic cells seemed to be undergoing a process of acute necrosis without preliminary shrinking. The literature and pathogeny of acute atrophy in secondary syphilis were discussed.

SECTION OF ANÆSTHETICS.

The Advisability of Legislation to Control the Administration of Anæsthetics.

A SPECIAL general meeting of this section was held on Jan. 20th to consider the advisability of legislation to control the administration of anæsthetics. The proposed Bill [1] was taken as the basis of the discussion, and Dr.

[1] The proposed Bill is published substantially on p. 346 of this issue.

DUDLEY W. BUXTON proposed that the Section of Anæsthetics should give its approval to Clauses I., IV., and V., and also to Clause III. if amended so as to read as follows:—

> This Act shall not apply to any person registered under the Dentists Act, 1878, who shall administer nitrous oxide gas with the object of producing a state of unconsciousness during any dental operation, act or procedure.

Dr. Buxton said that dentists had always been recognised as proper persons to administer nitrous oxide gas, and he did not think that this right should now be taken from them; but he considered that they should be prohibited from administering the more dangerous anæsthetics unless they possessed a medical qualification in addition to their dental one.

Mr. ROWLAND W. COLLUM seconded the motion, and said that the amendent to Clause III. was essential in order to make the Bill fair; for, by another clause, dental students were to be forced to receive thorough theoretical and practical instruction in anæsthetics, and yet by this clause, unless amended, they would be liable to a fine if they ever administered one afterwards.

Dr. J. F. W. SILK opposed the whole Bill on the ground that legislation was not the proper way, in his opinion, to bring about the required result. He also did not believe that the House of Commons would ever pass such a Bill.

Dr. F. W. HEWITT said he was very much surprised at the attitude of certain leading members of the section towards the proposed Bill. The speakers did not seem to realise that the measure, so far as its main principles went, had the support of the General Medical Council. Dr. Buxton's proposals were retrogressive. All general anæsthetics, including nitrous oxide, were toxic agents requiring for their safe and efficient administration a full knowledge of the vital differences between asphyxia and syncope, particularly as regards treatment. Dr. Buxton had quoted certain extracts from the correspondence between the Privy Council and General Medical Council which applied only to Clause 2 and had endeavoured to make them applicable to the Bill as a whole. Against this he (Dr. Hewitt) strongly protested. Their first duty was to the public. They must first raise the level of this branch of practice by limiting anæsthetic administrations to medically qualified persons, and then they must improve their systems of instruction. Many of the recorded deaths under anæsthetics were preventable and the Bill proposed was the first step towards improving the present regrettable state of things.

Mr. D. COTES-PREEDY discussed the Bill from the legal point of view and pointed out certain errors that some of the speakers seemed to have made in their interpretation of the Bill, for the wording of which he was responsible.

After further discussion the meeting was adjourned to Feb. 5th.

MEDICAL SOCIETY OF LONDON.

The Radical Abdominal Operation for Cancer of the Cervix by Wertheim's Method.

A MEETING of this society was held on Jan. 25th, Mr. C. B. LOCKWOOD being in the chair.

Dr. COMYNS BERKELEY read a paper on the Radical Abdominal Operation for Cancer of the Cervix by Wertheim's Method. He pointed out that the term "Wertheim" as indicating an operation through the abdomen for cancer of the cervix had been much abused. Ries of Chicago had by experiments proved that it was possible to remove from a living person the uterus and its appendages, the parametrium and cellular tissue of the pelvis, together with the regional glands up to the bifurcation of the common iliac and enough vagina to be free of the growth. Clark of Baltimore first followed this procedure in a living woman in 1905 and was quickly followed by several other surgeons, amongst whom was Wertheim. Wertheim modified the original operation by clamping forceps across the vagina before he divided this structure, and since he had performed the radical abdominal operation more consistently and in a larger number of cases than anyone else, this operation had at any rate in England been attributed to him. Dr. Berkeley had collected full statistics of 229 cases of the true Wertheim operation from different operators in the United Kingdom and said that as nearly every gynæcologist had answered his circular the list which he presented to the society that evening might be looked upon as nearly complete. Dr. Berkeley thought that the purposes of his paper would be fulfilled if he discussed the following points: What advantages had Wertheim's operation over simple vaginal hysterectomy and what over para-vaginal section? and he concluded his paper with some remarks on the complications of this operation and points in its technique which Dr. Victor Bonney and himself who had now together performed this operation on 30 occasions had found to be useful. Dr. Berkeley pointed out that Wertheim's operation had a great advantage over simple vaginal hysterectomy both in its percentage operability and percentage of cures, whilst if only similar cases were taken there was not much difference between the primary mortality. The primary mortality for simple vaginal hysterectomy with continental operators was on an average about 9 per cent. Döderlein gave a table of 4368 vaginal hysterectomies with a mortality of 9·1. The mortality for Wertheim's operation in early cases worked out at 6·8 per cent., in moderate cases 8 per cent., and in advanced cases 26·7 per cent. The mortality of the 229 operations which Dr. Berkeley had collected was 18·3 per cent., the mortality of his own cases was 16·6, and of Wertheim's 458 cases 15·2 per cent. The primary mortality taking all the cases was undoubtedly high but the statistics he presented to the society showed that this death-rate was considerably lowered with the increased experience of the operator. For instance, in Wertheim's first 30 it was 40 per cent.; in his last 30, 7 per cent. The high mortality when compared with simple vaginal hysterectomy was, of course, entirely due to the fact that cases of a much more advanced nature could be operated upon with safety by Wertheim's method. The percentage operability of vaginal hysterectomy was about 12. In comparison with this a large number of operators had a percentage operability of 40 and over. Dr. Berkeley and Dr. Bonney had kept very careful record of all the cases of cancer they had seen since they commenced operating by Wertheim's method and their percentage operability to date was 67. The most striking comparison that Dr. Berkeley brought before the meeting was that which dealt with the percentage of cures. Although vaginal hysterectomy might have a low primary mortality, still the after-results of this operation were terribly disappointing. Waldstein out of 274 cases only had four living after five years, and the statistics of several other operators were mentioned giving similar results. As the operation had only been performed in England, with the exception of two cases, since 1905 the statistics as to the percentage of cures were at present of no use, as five years formed the shortest limit for this purpose. Still, there were a large number of cases on the continent which fulfilled this standard and the results had been most gratifying. Out of 200 cases that Wertheim had operated upon more than five years ago 138 were still living. Polosson had 60 per cent. and Bumm 30 per cent. living free from recurrence after five years. The increased percentage of cures was due to two factors: the first because by Wertheim's method the parametrium and cellular tissue could be removed, whereas in vaginal hysterectomy it had to be left behind, and the second because the use of Wertheim's clamps prevented local cell implantation. Dr. Berkeley discussed fully the pathological findings of the parametrium and cellular tissue in cases of cancer of the cervix and showed that it was infected with cancer in at least 60 per cent. of the cases. He also discussed the question of local recurrence and cell implantation and showed that in nearly all cases of recurrence in the older methods of vaginal hysterectomy it was local, whereas by the extended abdominal operation local recurrence was rare. Dr. Berkeley then went on to compare the operation of para-vaginal section with Wertheim's operation and thought the chief decision as to which was the best method must rest upon the question whether it was necessary in Wertheim's operation to remove the regional glands. A large number of facts bearing upon this point were presented to the meeting which went to show that there must be considerable doubt as to the advisability of removing the glands. If the glands that could be surgically removed were diseased in a large number of cases those which could not be removed were also diseased, so that many operators said that for this reason it was useless removing any glands, and also in favour of this contention was the fact that glandular

infection was not present in probably more than one-third of the cases. He mentioned some statistics from the Middlesex Hospital cancer investigation laboratories which strikingly illustrated this point. Supposing there was no need to remove the glands then the advocates of paravaginal section contended that by this operation just as much parametrium and cellular tissue could be removed without so much danger to the patient. He mentioned that in Schauta's hands, who had probably more experience of this operation than anyone else, the results were very good, since this operator's total mortality for 258 cases was 10·8 and in 79 early cases 3·7. His percentage of cures over five years had been 55 and his percentage operability had been nearly as great as those who operated through the abdomen. Dr. Berkeley, in discussing the treatment, presented several interesting facts to the society and showed a special pair of clamps which he had invented with Dr. Bonney and which entirely overcame all the difficulties and dangers which were associated with Wertheim's clamps. He also showed 27 of the 30 specimens that he and Dr. Bonney had removed.

Dr. HERBERT R. SPENCER said that the low mortality of vaginal hysterectomy had not been fully stated. There were some operators who had as low a mortality as 4 per cent. or 5 per cent. The most terrible thing about Wertheim's operation was the high mortality.

Dr. F. J. MCCANN said that Wertheim's operation was useful in early cases. He thought the operation was unjustifiable if the bladder was extensively involved by the disease.

Dr. A. H. N. LEWERS said that in his first ten cases he had lost four, but in his last ten cases all the patients had recovered. He considered therefore that the operation need not be condemned because the mortality from the operation need not be very considerable.

Dr. H. RUSSELL ANDREWS said that with increasing experience and by operating on early cases the mortality need not be higher than that of vaginal hysterectomy.

Mr. DOUGLAS DREW criticised the form of the clamp exhibited.

Mr. J. D. MALCOLM said that if recurrences occurred after Wertheim's operation the patient was better off than before.

After Dr. M. HANDFIELD-JONES had commented on the technique of the operation,

Dr. BONNEY declared that he did not know a single unpreventable cause of death in an early case which had been treated by Wertheim's operation.

Dr. BERKELEY then replied.

Mr. W. F. BROOK (Swansea) read a Preliminary Note on the Relationship of Delayed Union in Fractures to Deficiency of Calcium Salts in the Blood.

THE SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

The Parasite of Kala Azar and Allied Organisms.—Jeddah Ulcer.

A MEETING of this society was held on Jan. 15th, Sir PATRICK MANSON, the President, being in the chair.

Captain W. SCOTT PATTON, I.M.S. (King Institute of Preventive Medicine, Madras), read a paper on the Parasite of Kala Azar and Allied Organisms, which is printed in full in this issue of THE LANCET (see p. 306).—Dr. L. W. SAMBON referred to the opinion put forward by Sir Patrick Manson that the parasite of kala azar was identical with the parasite of oriental sore and pointed out that kala azar was a fatal disease, whilst oriental sore was benign and conferred immunity, it was said, to an attack of kala azar. According to Sir Patrick Manson they must look on oriental sore as a local manifestation of kala azar. That idea had been opposed on account of supposed geographical distribution but that, in Dr. Sambon's opinion, was rather in favour of the theory than against it.—Dr. G. C. LOW said that he could not agree that it was definitely ascertained that the Leishman parasite was a herpetomonas, though it had a resemblance in its flagellate forms, yet these did not go through any sexual development.—Sir RICHARD HAVELOCK CHARLES said that he had had considerable experience on the North-West frontier of India but he had never seen one case of kala azar, though he had treated many natives and Europeans for oriental sore. Subsequently in Lower Bengal he had seen plenty of kala azar. If the one disease were so closely related to the other as Dr. Sambon had pointed out, then they would expect that where oriental sore existed there also they would find kala azar.—Dr. C. M. WENYON said that they must be careful not to draw a hard-and-fast line between forms of herpetomonas and trypanosomes.—The PRESIDENT said it was very evident that the subject was a complicated one and that it was dangerous for anyone to assume that the life-history of the Leishman body was even approximately investigated. He pointed out that Captain Patton had assumed in regard to the domestic fly that it infected itself by feeding on its own fæces. The President questioned the probability of this and said that as it was an assumption it required proof before being accepted. In regard to the identity of kala azar with oriental sore it was quite possible that they were not identical but that had not yet been proved. No one was justified in experimenting with the kala azar parasite because of its fatal character, but it was justifiable to experiment with the corresponding parasite of oriental sore and there was no reason to suppose that if such experiments were successful they would not throw light on kala azar. Some effort should certainly be made to work out the life-history of the parasite of oriental sore.

Dr. F. M. SANDWITH showed for Dr. J. E. CRESWELL of Suez a specimen of "Jeddah Ulcer," and explained that it should be more correctly called oriental sore, to which a new name had lately been added by French writers, "*Leishmaniose cutanée.*" He quoted Volney, the traveller of the eighteenth century, who wrote that the inhabitants of Aleppo were nearly all disfigured by scars on the face which they thought due to bad drinking water. That supposed cause was repeated by various writers for more than a century, and was still believed in by many Orientals. It was stated that in India and elsewhere the disease had become less prevalent since the water-supply had been improved. As the disease was confined to tropical and subtropical climates, it was observed more frequently in towns than in country districts, was usually present on uncovered parts of the body, and could be communicated by inoculation to a healthy person, he suggested that the parasite might be conveyed to man by some water-loving and town-dwelling insect. The seasonal influence was also in favour of that theory, for sores were most common in the autumn months, when gnats and other insects, which thrive in moderate heat, were most numerous in towns, and the season often corresponded with the date harvest and had therefore, like dengue fever, been supposed to be connected with it. In Tashkend the disease had for years been called the "fly-bite." He maintained that distinction should be drawn between oriental sore and the well-known Nile boil, for though the latter could be inoculated into a healthy man it did not usually proceed to ulceration and it did not last for several months, like the oriental sore, each individual boil usually disappearing at the end of a fortnight. He also quoted from Mr. F. C. Madden's cases in Cairo from one of which a pure culture of staphylococcus pyogenes aureus was grown.

After Captain PATTON had replied the proceedings terminated.

EDINBURGH OBSTETRICAL SOCIETY.

Extra-Uterine Gestation.—Physiology of the Uterus and Ovary in Regard to Conservative Surgery.

A MEETING of this society was held on Jan. 13th, Professor W. STEPHENSON (Aberdeen), the President, being in the chair.

Dr. W. FORDYCE read clinical notes of seven recent cases of Extra-uterine Gestation. These notes were given in detail of each case and illustrated many points of interest in connexion with the subject, especially the irregularity of the symptoms and the varying character of the physical signs which render the diagnosis of extra-uterine gestation before serious internal hæmorrhage as a result of rupture so very difficult. In three of the cases the early symptoms were mistaken by the patients as those of miscarriage, and in one this supposition was strengthened by the passing of a distinct decidual membrane. Another case had been curetted for incomplete abortion before

being seen by Dr. Fordyce. Even on bimanual examination the Fallopian tube might only have a slight enlargement and yet the rupture be accompanied with dangerous internal bleeding. Where there had been a gradual rupture, or where the gestation continued to develop in the broad ligament or in the pouch of Douglas, or where a peritubal hæmatocele formed in the pouch of Douglas, great difficulty was experienced in the diagnosis. A soft boggy swelling in the pouch of Douglas, pushing the cervix upwards and forwards, might produce all the symptoms and signs of an impacted gravid uterus. Cases of retroflexion of the gravid uterus in which the lower portion had remained impacted in the pelvis till full term had been described—the so-called sacculated uterus—and where delivery had been effected by opening the posterior fornix: it was a question whether some of these were not really extra-uterine. In one of the cases detailed by Dr. Fordyce the size of the uterus was found to be normal. Another point of interest was that in spite of very large hæmorrhage no dulness on percussion could be detected anywhere, nor any bulging of the posterior fornix. The operation in Dr. Fordyce's opinion should not be deferred but carried out as soon as possible, no matter how collapsed the patient might be; and in all cases, except suppurative, he would choose the abdominal route. The patient should be in the Trendelenburg posture. Whenever the peritoneum was opened the broad ligament on the affected side should be at once clamped at its two extremities. This could be done by touch alone if blood impeded the view, and with the source of bleeding thus controlled the operation could be completed with confidence. If the broad ligament was obscured by blood clot more or less firmly adherent to bowels and bladder then this must be removed by swabbing most carefully, and only sufficiently at first to get on the clamps. If the patient was very collapsed before the operation swabbing might be dangerous by causing a fresh laceration of the friable broad ligament and a further hæmorrhage which might prove fatal. This occurred in one of his earliest cases before this series. After the broad ligament had been carefully ligatured and the gestation removed no time should be wasted in washing out the abdomen or swabbing out all the liquid blood. The most easily accessible clots found in the flanks and pouch of Douglas could be quickly scooped out and the rest left. The peritoneal cavity should be filled with warm saline solution, leaving it to be absorbed with what blood had been left. It might be necessary to perform direct intravenous transfusion. In these seven cases there were no deaths; in a previous six there had been one death, alluded to in the paper.—The PRESIDENT, Dr. N. T. BREWIS, Dr. F. W. N. HAULTAIN, Dr. D. BERRY HART, Dr. A. H. F. BARBOUR, Dr. J. HAIG FERGUSON, and Dr. B. P. WATSON made remarks on the paper, and Dr. FORDYCE replied.

Dr. E. W. SCOTT CARMICHAEL read a paper on Physiological Conditions relative to the Conservative Surgery of the Uterus, Tubes, and Ovaries. He gave a record of the results of some experiments, carried out in association with Dr. F. H. A. Marshall, bearing on the physiology of the subject. The ovary had now been fairly established as an organ of internal secretion but there was much controversy as to its importance, and such a substance as "uterin" was stated to maintain the uterus in functional activity without the presence of ovarian tissue. Ovarian activity was supposed to depend on the presence of the uterus. The experiments made included the removal of ovaries in rabbits which were killed subsequently in order that the condition of the uterus, especially of its muscle, might be examined. On the other hand, clinical observations by Zweifel and Abel seemed to support the view of the presence of a uterine secretion influencing the ovaries; they believed that if some of the uterine mucous membrane be preserved in performing hysterectomy, the supervening menopause would be prevented. To test the validity of these statements and others by Mandl and Burger the entire uterus was removed in four very young rabbits. These were allowed to grow to adult life, when they were killed. The ovaries developed normally. These experiments would seem to show that the growth and development of the ovaries were in no way dependent on the presence of the uterus and contradicted the evidence of Zweifel, Abel, and Mandl and Burger. The uterus might therefore be considered as an organ exerting no general influence on the economy, and its removal along with the ovaries for disease of the latter must be looked upon as a very different matter from the removal of the ovaries with a diseased uterus. Thus conservative operation on the uterus, analogous to the conservatism conserving ovarian tissue, was unnecessary from any point of view except for its safety to the patient. The conservative principles applied to the treatment of the ovary involved the puncture of small cysts, the excision of small cysts, the resection of part of the ovary, and transplantation in whole or in part of an ovary. Dr. Carmichael described a series of experiments in which a single ovary was removed in rabbits. This was weighed and preserved, and compared with the opposite ovary removed some months afterwards.[1] The remaining ovary, removed some months afterwards, was found in healthy animals to have undergone marked compensatory hypertrophy, in one case being exactly twice the size as measured by weight. In one animal during the interval three litters of young ones were born, in each instance the number being seven, showing that ovulation in the single ovary was exceptionally active, as a litter of from 12 to 14 from two ovaries was not a usual occurrence in a rabbit. Another experiment showed that this compensating power did not depend upon the presence of the uterus. Such results obtained were certainly encouraging to conserving even the smallest portion of ovarian tissue in the human subject. Dr. Carmichael had carried out 21 transplantations of the ovary in rabbits to satisfy himself as to the possibilities in the human subject. Complete success was only attained in one case, in which the whole ovary was in a normal state of preservation three months after it was grafted. In 15 of the experiments there was partial success, ovarian tissue still persisting after some months, with healthy Graafian follicles present in ten cases. From these experiments it appeared that the grafting of the whole ovary, large as it was in the human subject, could rarely be attended with success with such a mass of tissue. There was little doubt, however, that partial grafting could with careful technique be always attended with success. Homoplastic grafting, therefore, in inflammatory disease of the tubes and ovaries in young subjects seemed to be indicated as the result of experimental evidence. They had yet much to learn as to its ultimate value in the human subject. Conservative treatment in the surgery of the Fallopian tube was as yet in its infancy. An ectopic gestation was still an indication for removal of the whole Fallopian tube; but the future of conservatism in this organ lay in the release of adherent tubes, the opening and resection of closed tubes, the drainage of tubal abscess, and the preservation of tubes in cases of ectopic gestation.—The PRESIDENT, Dr. HAULTAIN, and Dr. BARBOUR discussed the paper, and Dr. CARMICHAEL replied.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on Jan. 19th, Mr. Justice Walton, the President, being in the chair.—Mr. L. C. S. Broughton of Langley, near Birmingham, read a paper on Industrial Life Insurance. He said that the laxity which accompanied so many of the transactions for this class of life insurance offered such chances of personal gain to many whose code of ethics the members of that society would not select for their own that they might profitably reflect on some of its workings. The poorer classes nowadays had much more to do with life insurance than formerly. That was mainly due to the competition amongst the various companies having become keener year by year. The insurance agent derived his income solely from commissions and his importunity was well known. Mr. Broughton proceeded to describe various devices by which insurance agents were tempted to increase their earnings, such as by the introduction of undesirable cases. He said that many of the poorer classes did not seem to realise that there ought to be a fair risk as between company and insured and that to that end the candidate ought to be in a reasonably good state of health at the time of the proposal. There were, however, only too many policies taken out by persons on the lives of others whom they knew to be in failing health, and that reduced such insurances to the level of a gamble. When about to effect an insurance the agent visited the proposed person, made some preliminary inquiries, and got the proposal form

1 See Journal of Physiology, Feb. 24th, 1908.

filled up and signed. That latter, which should be done by the proposed, was practically always done by the agent. The form also contained the usual declaration as to the truth of the answers contained therein serving as the basis of the contract. The agent then forwarded the form to the head office together with his report on the case. That might or might not be followed by a medical examination, depending on the amount insured for. If no such examination took place it was apparent that the candidate might be the subject of such serious disease as to be really quite uninsurable. He knew of many such instances. He had not the slightest doubt but that the various industrial companies could repudiate their liability in the majority of their cases if they were to apply a strict interpretation of the declaration, and the law would most probably support them. However, such action, together with the concomitant publicity in the law courts, would be inimical to their own interests by deterring the public from insuring. If the insured had died after chronic illness, such as cancer, pulmonary tuberculosis, Bright's disease, and so on, the company might insist on a medical certificate as to the duration of the disease, and if as a result they refused to pay over the money the practitioner would be unjustly blamed by the relatives or rather by the would-be beneficiaries. In cases of that kind it had several times happened to Mr. Broughton that he was asked to falsify the certificate and the medical certificate also. The question of insurable interest was one that ought really to loom largely in all those insurance transactions. He did not think that the non-medical members of the society had any idea of the very large number of policies in existence where the beneficiary had no insurable interest whatever in the life of the assured. Personally he was constantly coming across such cases. Only a few months ago he had attended a man who died after a chronic illness; during this illness there were nine different policies taken out on his life, one by his married daughter with whom he had lodged, and the others by neighbours; none of the latter had any insurable interest in his life. It was a wise enactment on the part of the legislature that the maximum sum payable on the death of a child under five years of age should not exceed £5 and that such money should only be payable to the parent or his representative. It would be an improvement if the insurance of illegitimate children before a like age were prohibited. To anyone conversant with the ways of our poorest classes the uncomfortable conviction was borne in on one's mind that the insurance of their young children put a premium on child neglect. With properly conducted industrial life insurance there was no cause of complaint. In many instances it was the only provision that could be made for funeral expenses.—In the discussion that followed Dr. F. J. Smith, Mr. H. A. Harben, Mr. M. I. Finucane, Mr. H. Sweeney, Mr. A. R. Barraud, and Mr. R. Burrows, LL.D., took part.—Mr. Broughton briefly replied and criticised the very small fees that companies allowed for medical examinations.—A paper was also read by Mr. Arthur S. Morley on Some Experiences of the Difficulties and Abuses of the Workmen's Compensation Acts but discussion thereon was adjourned till March 23rd.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A meeting of this society was held on Jan. 20th, Dr. E. Solly (Harrogate), the President, being in the chair.—Dr. C. W. Buckley (Buxton) read a paper entitled "Intestinal Lavage on the Plombières System," and a discussion followed. Dr. Buckley said that intestinal lavage in its wider sense was dealt with rather than the Plombières treatment in its narrower application as a remedy for mucous colitis, but the advantages of this system of douching and its mode of application were fully described. The treatment of muco-membranous colitis and of constipation and the relation of these conditions to auto-intoxication were discussed, and the value of the douche as an intestinal antiseptic was emphasised. The possibility of various diseases arising from intestinal putrefactive processes was then discussed and cases were reported of gout, rheumatoid arthritis, fibrositis, neurasthenia, &c., in which the method had proved of value either alone or in combination with other modes of treatment. The most suitable fluids for douching, the use of antiseptics for the purpose, and the effects of absorption were dealt with, and finally the drawbacks and contra-indications. The conclusions arrived at were that where evidences of intestinal putrefaction could be found from examination of urine, stools, &c., better results were obtainable by douching than by the use of chemical antiseptics, and in those cases where appendicostomy might seem to be indicated for lavage of the colon this method should be tried.—Mr. W. Armstrong (Buxton) said he had found intestinal lavage of great value. He had used it for the last eight years in a large number of cases. He reported some six years ago a very remarkable case of rheumatoid arthritis cured by intestinal lavage alone. The important point had always seemed to him to be the exact indications for this treatment, and his experience had shown that the most trustworthy guide was the increase of the aromatic sulphates.—Dr. R. Ackerley (Llandrindod Wells) did not think the removal of mucus by lavage had more than temporary results. The secretion of mucus was protective and the aim should be to prevent injurious substances entering or being formed in the bowel. In its proper place, as accessory to other treatment, he fully recognised the value of intestinal lavage.—Dr. F. A. de T. Mouillot (Harrogate) said that he considered the method of intestinal lavage a most valuable addition to ordinary eliminative spa treatment. It was so even in Harrogate where the waters usually act as laxatives. Dr. Mouillot pointed out that the water used for the purpose was that called "Starbeck," which was an alkaline chloride of sodium water, practically identical with normal saline solution.—Dr. A. Mantle (Harrogate) said that after considerable experience of intestinal lavage with excellent results they must consider the cases for which such treatment was most suitable. The theory of intestinal auto-intoxication might be carried too far, and he was inclined to think with Hertz that it was necessary to have a breach of mucous membrane—an abrasion or ulcer—to get absorption of toxins from the bowel. His chief guide for adopting this treatment was the discharge of mucus from the bowel, and as there seemed to be a doubt in the mind of some as to this being an abnormal condition, he would say most emphatically that mucus when normally secreted should be so combined with the faecal matter as to be invisible. If this mucous discharge continued symptoms of toxin absorption chiefly affecting the nervous and circulatory systems appeared, the former of a neurasthenic character, the latter shown by a poor peripheral circulation. He had found washing out the colon give good results in some cases of rheumatoid arthritis and chronic skin diseases but only when associated with colitis, and unless mucus was seen he would not advise it in such cases.—Mr. C. R. B. Keetley (London) said that appendicostomy or some such operation was a supplement to the Plombières treatment which might occasionally be found of utility.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Jan. 22nd, Dr. Alexander Morison, the President, being in the chair.—Dr. T. Grainger Stewart read a paper on Locomotor Ataxia and its Treatment. He said that it was unjust and untrue to regard tabes as incurable, for they could prolong the patient's life and render it bearable. As regards etiology, tabes was a disease of middle life, 50 per cent. of all cases coming on between the ages of 30 and 40 years, and it was the more common in men. Dr. Stewart regarded syphilis as the causative agent of all cases of tabes, which he defined as a degeneration of certain parts of the nervous system resulting from toxic products produced by syphilis, its action on the body being increased by anything which lowered the resistance of the organism—e.g., fatigue, privation, cold, alcohol, and sexual excess. The essential lesion was a degeneration of certain fibres entering by the posterior nerve roots into the spinal cord and it was obvious that the symptoms depended on the region in which the roots were affected. The mental condition of tabetics was usually normal but they might suffer from melancholia or delusions. As regards vision, 10 per cent. had optic atrophy due to a primary degeneration of the optic nerve fibres, which as a rule were bilateral and developed slowly, and might stop or go on to complete blindness. A very important sign was that the outline of the pupils tended to become irregular. The tabetic facies was characterised by the patient's pupils being rather small and inactive to light and the lids somewhat drooped, but to compensate for this there was arching of the eyebrows. In tabes there was no muscular wasting but the muscles were in a state of atony due to affection of the sensory neuron, which was characterised by a loss of deep reflexes. Ataxia was the inability to perform voluntary movements at all

accurately because of the inability to appreciate the position of the limbs or to guide them properly. In the earliest cases of tabes there was as a general rule loss of a deep sense of pain—e.g., if the calf muscles were pressed deeply no discomfort was caused. The trophic changes seen in the joints were loss of tone in the ligaments, increase of synovial fluid, erosion of the bone, and ultimately complete disorganisation of the joint. Tabes might begin in various ways—e.g., with slight limb pains, with very severe pains, with gastric crisis, with trophic conditions, with bladder and sexual affections, with impaired vision, or with an attack of acute ataxia. The indications for antisyphilitic treatment were ocular paralysis or onset of tabes within five years of the syphilitic attack. If the patient had never had any antisyphilitic treatment it should be given. It was important for the patient to have plenty of food and rest and to avoid all excesses. The pains were best treated by antipyrin, phenacetin, or aspirin, different patients reacting to different drugs. In gastric crisis one or two drops of tincture of iodine in a wineglassful of water often acted like magic. The bladder symptoms demanded constant care and it should be insisted on that the patient passed urine at definite times, say, every three hours. Fränkel's method of re-education of the muscles often helped the patient to regain the control of his lost voluntary movements. He was first taught to perform simple movements, then more complex movements, and the results obtained were often wonderful.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 15th, Dr. J. Walker Downie, the President, being in the chair.—Dr. W. B. Inglis Pollock read a paper on Nystagmus and Theories regarding its Causation. A short description was given of the various theories of the mechanism of nystagmus. Duchenne ascribed it to a retardation of the nervous impulses to one member of a system of antagonised muscles, while Widmark associated it with a want of harmony between the centre for the coördination of the ocular muscles and the volitional impulse. Gowers had recently brought forward a theory based upon Sherrington's researches into the spinal centres and the alternate contraction of opposing muscles. He believed that the centre for the control of the ocular muscles might be disturbed by influences from many sides, allowing a reciprocal muscle-reflex alternation between antagonistic ocular muscles to be set up. The paper was illustrated by a case of congenital pseudo-nystagmus, a case of congenital nystagmus due to high refractive error, and a case of miner's nystagmus with the vertical variety in one eye and rotational in the other.—Dr. J. F. Gemmill gave a lantern and microscopic demonstration of the Auriculo-ventricular Muscular Bundle of His in the Adult Human and in Certain Fœtal Hearts.—Dr. John M. Cowan demonstrated a series of tracings of the Venous Pulse illustrating the different conditions which might result from interference with the auriculo-ventricular bundle of His.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Jan. 20th, Dr. P. Boobbyer, the President, being in the chair.—Mr. R. G. Hogarth and Dr. R. Heelis showed a man, aged 29 years, suffering from Gigantic Enlargement of the Skull, Enlargement of the Extremities, Spinal Kyphosis, and other Bony Deformities. Up to the age of 12 years, when he broke one thigh, nothing abnormal was noticed, but about that time the upper jaw began to swell and since then he had broken one humerus. His mental condition was normal and although he sometimes had pain at the back of the eyes he seldom had headache. In spite of some features suggestive of leontiasis ossea, the case as a whole seemed to accord better with acromegaly.—Mr. Hogarth also showed a man, aged 40 years, employed as a caretaker, suffering from Aneurysm of the Innominate Artery. Operation for distal ligature of the subclavian and common carotid arteries had been declined two years ago, but the disease appeared practically unchanged since then. Mr. Hogarth showed a girl, aged ten years, who had suffered from Multiple Tuberculous Lymphadenitis to a degree which made the condition inoperable. A few caseous glands were removed from the neck and systematic treatment with tuberculin in doses of 1-1000th of a milligramme was carried out over a period of nine months. The result had been highly encouraging.—The cases were discussed by Dr. J. S. Bolton, Dr. A. J. Sharp, and Dr. W. Hunter, and Mr. Hogarth replied.—Mr. Hogarth then read a short paper on Certain Derangements of the Knee-joint the Result of Traumatism. In the case of a young man under his care a moveable lump within the joint proved on removal to consist of both articular cartilage and bone. Another case illustrated very well the "quiet necrosis," or osteo-chondritis desiccans, which follows some injuries of this kind. A third case was in a young girl who after recovering perfectly from an attack of acute synovitis lasting a month relapsed. Eventually after several attacks of slight synovitis an operation resulted in the removal of a fibrous pedunculated body which took origin from the synovial membrane. Mr. Hogarth further traced the anatomical features of the joint concerned in the production of these injuries and indicated occasional difficulties in locating and removing a loose body so produced as well as the important relation the popliteus tendon bore in operations for their removal. Treatment by means of a steel bar hinged splint, which effectually prevented torsion, was recommended.—Mr. R. Wood (Ilkeston) and Dr. Bolton discussed the paper.—Dr. J. Watson showed the placenta (single), fœtal bags of membrane (distinct), and twins, of which one was living at birth and one previously dead, from a case of extreme Hydramnios in a young married woman.

Reviews and Notices of Books.

Bacteria in Relation to Country Life. By JACOB G. LIPMAN, A.M., Ph.D., Soil Chemist and Bacteriologist for the Jersey Agricultural Experiment Station and Associate Professor of Agriculture in Rutgers College. New York: The Macmillan Company. 1908. Pp. 486. Price 6s. 6*d.* net.

THIS work, which forms one of the Rural Science Series edited by L. H. Bailey, is addressed less to the medical man than to the intelligent layman and agriculturist. Many subjects of interest in relation to disease and sanitation are, however, dealt with. At the present time when the cry of "back to the land" is in the mouths of so many the problems presented to the landowner and the farmer cannot fail to be of the greatest interest and importance. The time has passed when farming can be conducted successfully by the amateur, though it still offers lucrative employment to those who realise its difficulties and the need for proper technical training in order to cope with them. This book will at least awaken the reader to the extreme complexity of the relations existing between the fertility of the soil and bacteria and the difficulty of guiding and controlling their interactions to the farmer's profit. It, however, does more than this, as in simple language it conveys a great deal of accurate information which may help in the solution of the problems presented. It is a popular book in the best sense and the absence of technical expressions is not simply an excuse for slipshod statements. It is doubtful, however, whether the elimination of bacteriological technicalities is not more than compensated for by the introduction of those belonging to agriculture. The medical man and the farmer should sympathise with one another, for each is engaged in the attempt to solve, with insufficient data, practical problems of the highest importance to themselves and others.

Since the points at which bacteria concern and influence country life are numerous a wide range of subjects has to be dealt with, but the kernel of the book, as might perhaps be expected from the author's official position, is to be found in Part IV. which deals with the relation of bacteria to the fertility of the soil. This section, and the shorter Part V., which concerns the closely allied subject of the changes produced by organisms in barnyard manure, occupy nearly half the book. In Part IV. the fascinating subjects of nitrification, so important in sewage disposal as well as in farming, and the fixation of nitrogen in the soil by

leguminous crops associated with root nodule organisms are considered. Here also the counteracting activities of denitrifying microbes and the possibilities of the use of inoculations of the soil as a means of increasing its fertility are discussed. In regard to this last subject the author seems to be less optimistic than might have been expected from the somewhat glowing accounts of American success which have appeared. Though these portions of the book are the most characteristic and authoritative many other subjects commonly found in works on bacteriology are dealt with.

Part I. serves as an introduction to the book and describes shortly the structure and physiology of bacteria. The consideration of the bacteriology of air and water occupies Part II., while the problems of sewage disposal and the relations between bacteria and sewage are dealt with in Part III. Here the author is dealing with questions which are closely allied to those which affect the fertility of the soil and the problem of the bacterial purification of sewage, whether by filters or farms, are ably discussed. Bacteria in milk and milk products form the subject of Part IV. and here hygienic questions of considerable importance arise. The author draws attention to the danger of the contamination of milk by the bacillus tuberculosis arising from the fæces of tuberculous cows, as in this material the bacillus is found in large numbers. He admits the importance and value of pasteurisation of milk but insists that this preservative treatment should not be used as a means of escape from the trouble of careful collection, storage, cooling, and transport of the milk; he would also seem to permit the use of some antiseptics, such as formaldehyde. Finally the subjects of food preservation and certain fermentations are dealt with. There are a good index and glossary. The book is well printed and attractive in appearance and there are a considerable number of illustrations. We are not often reminded of the American origin of the book by its style or spelling but proper names such as Kohn and Wygert are a little difficult to recognise.

The book deals with very important subjects and may be read with much profit by all who are interested in the problems of country life.

Pulsating Exophthalmos. By GEORGE E. DE SCHWEINITZ, M.D., Professor of Ophthalmology in the University of Pennsylvania; and THOMAS B. HOLLOWAY, M.D., Instructor in Ophthalmology in the University of Pennsylvania. London and Philadelphia: W. B. Saunders Company. 1908. Pp. 124. Price 10*s.* net.

Dr. de Schweinitz and Dr. Holloway have been well advised in elaborating and republishing their paper read before the College of Physicians of Philadelphia on Pulsating Exophthalmos. Sattler's article in the handbook of Graefe and Saemisch in 1880, classifying the 106 cases reported up to that time, forms a landmark in the history of the disease. In all 313 cases had been recorded up to July, 1907, and the present monograph, whilst reviewing the whole subject, deals chiefly with 69 cases not previously analysed. The additional facts brought forward add little to our knowledge of the etiology and symptomatology of the disease. Of the total number of cases 68·3 per cent. are traumatic in origin and, as might be anticipated, occur most frequently in males. Of the remainder spontaneous onset is found to be more common in women and it is noteworthy that pregnancy and its associated conditions have been an etiological factor in 28·5 per cent., or 4·4 per cent. of the total number. Exophthalmos, pulsation, and bruit are the cardinal signs of the disease. Special attention is directed to the last named, since it has not hitherto received the attention to which it is entitled. Subjective bruit is usually one of the first symptoms noticed; objective bruit may be purely systolic or continuous, generally with systolic accentuation. The bruit de piaulement, when present, is held by Sattler and Rivington to be highly significant of arterio-venous communication. Interest has always been centred chiefly in the pathology and treatment of the disease, and the authors have brought forward valuable additional information on these points. The importance of arterio-venous communication affecting the carotid artery and the cavernous sinus is confirmed, but the possibility of aneurysm of the carotid or ophthalmic artery, invasion of the orbit by new growths, and other rarer causes of the symptom-complex is demonstrated. The methods of treatment include ligation of the larger blood-vessels in the neck, operations upon the orbit, compression of the common carotid, direct compression of venous swellings, injections of gelatin, and the administration of drugs, combined with rest in the recumbent posture. In 150 cases in which ligature of the common carotid was resorted to cure or improvement occurred in 64·6 per cent., failure in 25·3 per cent., and death in 10 per cent. Ligation of both common carotids has proved dangerous to life even when a considerable interval has been allowed to elapse between the two operations. The internal or external carotid has been tied in preference to the common carotid, but statistics do not appear to demonstrate any sufficient advantage for adopting this procedure. In the later history of the complaint masses of dilated veins usually appear in the lids and anterior part of the orbit, commonly above the inner canthus. These are supplied by an enormously dilated vessel, probably the superior ophthalmic vein. Ligature of this vessel in the orbit, with or without previous ligature of the carotid, has been followed by cessation of the symptoms. Greater weight must be attached to this observation in treating future cases and those who are called upon to do so are recommended to consult this work. The monograph concludes with a tabular summary of the 69 cases.

Ophthalmic Surgery: A Handbook of the Surgical Operations on the Eyeball and its Appendages as Practised at the Clinic of Hofrat Professor Fuchs. By Dr. JOSEF MELLER, Privat-docent and First Assistant in the K.K. University II. Eye Clinic, Vienna. Translated by WALTER L. PYLE, A.M., M.D., Ophthalmologist to Mount Sinai Hospital. With 118 original illustrations. London: Rebman, Limited. 1908. Pp. 262. Price 12*s.* 6*d.* net.

ONLY a few years ago there was no monograph on ophthalmic operative surgery; now there are several, two of which have quite recently appeared written by Englishmen. The present volume represents the practice of one of the best ophthalmic clinics on the continent. It has the advantage of introducing the untravelled Englishman to methods with which he is not familiar but this is a corresponding disadvantage to the beginner.

The book opens with a detailed and excellent account of extirpation of the lacrymal sac by a method which has been modified by Dr. Meller. We notice that he does not use Axenfeld's retractor and that he keeps outside the sac throughout the operation. We agree with his procedure in the first point but have found it best as a rule to open the sac boldly at the outset. Other operations on the lacrymal apparatus are next described, followed by those upon the lids. The usual operations for trichiasis, ectropion, and entropion are well described, as are also those of Hess and Eversbusch for ptosis. Passing on to operations upon the eye muscles the advancement recommended is essentially the same as Critchett's with two sutures. With the author's indications for the various operations and the discussion of strabismus in general we are in substantial accord. Enucleation of the eyeball and exenteration of the orbit call for no special comment. Plastic operations on the

eyelids are discussed somewhat scantily. It is when we reach the intra-ocular operations that we meet with the most striking differences from the procedures customary in this country. When a surgeon elects to sit below the patient in doing a cataract extraction, using the left hand and cutting away from himself in operating upon the right eye, he appears to us deliberately to manufacture difficulties. Yet this method is common not only in Vienna but also in other clinics. There are surgeons in this country who adopt the position for operating upon the left eye in order that they may have the advantage of using the right hand for making the section and this is, of course, not unreasonable. Since the descriptions of all intra-ocular operations follow this method the utility of the book for English students is much depreciated. Otherwise the methods advocated differ little from ours and the teaching is admirable. We are in complete agreement with the recommendation of extraction with iridectomy, though some highly competent authorities still adhere to simple extraction. It is a point upon which much argument has been uttered but each disputant "has gone out by the same door wherein he went." Yet all will agree that the beginner should be taught the safer operation, so none need cavil at the author for his advice. In treating of glaucoma, cyclodialysis is described. The last chapters deal with a variety of minor operations.

With the limitations already mentioned we can strongly recommend the book which is very well printed and excellently illustrated.

Atlas de Radiologie Normale. By Dr. L. HAUCHAMPS (Brussels), Dr. J. KLYNENS (Antwerp), and Dr. E. MAHAUX (Brussels). With 153 diagrams and life-size radiograms. Paris: O. Doin. 1908. Pp. 308. Price 20 francs.

THIS work is one of the most important and valuable contributions to x ray literature that have yet appeared. Not only is the subject of radiography treated in a masterly manner but everything seems to have been done to place the reader in a position to become quite conversant with the subject and to deal effectually with difficulties as they arise; the book is also illustrated with a most excellent set of normal radiograms, with each of which is given a list of the points therein of any importance, and all of these are numbered *in situ* as well as on the list, so that identification is an easy matter.

The first part is concerned with the management of the tube and apparatus and with the general principles underlying the practice of radiography. All doubtful points are explained by means of diagrams and illustrations. The second part is the most important and relates to the skeleton. No part of the body has been omitted and of every part is given a good radiogram fully explained in the manner mentioned above. In most of these is placed a small cross which corresponds to the point above which was placed the centre of the focus tube, these points having been found to be the best. Three plates are given of each part, taken at five years, 10 years, and adult age. An important chapter, inasmuch as so little has been done on the subject in this country at least, is that relating to the radiography of the head. Apparently a surprising amount of information can be obtained in this way and we hope to see the method more generally adopted. The third part deals with the urinary organs and owing to the great importance of this branch of the subject this section has been treated in a very comprehensive way.

Part IV. relates to the digestive organs, with special reference to the use of the bismuth meal for enabling clear records to be taken. In Part V. the radiography of the heart and aorta is referred to, including the use of teleradiography in this important branch of medical diagnosis. The book concludes with an excellent chapter on the respiratory organs which gives evidence of that same scrupulous care in preparation which characterises the rest of the work.

While, of course, this volume will be of especial interest to radiographers, we think that every busy physician and surgeon will find it of the greatest value. There are few busy practitioners who have not occasion to call in the services of a radiographer and when the plate is ready it is of immense advantage to have a good normal radiograph of the same part at hand for comparison, especially when a full explanation is given with it. To those who make frequent use of radiography in the examination of their cases this book will be as useful as a text-book of anatomy.

We commend the work most highly and particularly do we wish to praise the illustrations and the care with which the authors have prepared the original radiograms as also the manner in which they have been reproduced. We doubt if they could have been done better. For many in this country it is unfortunate that the work is written in the French language but considering its value it is not unreasonable to hope that an English translation will soon be available.

LIBRARY TABLE.

The Clinical Use of Prisms and the Decentring of Lenses. By ERNEST E. MADDOX, M.D. Edin., F.R.C.S. Edin., Ophthalmic Surgeon to the Royal Victoria and Royal Boscombe Hospitals, Bournemouth. Fifth edition, revised and enlarged. Bristol: John Wright and Co. Pp. 205. Price 5*s.* 6*d.* net.—Much attention has been directed to the treatment of anomalies of the extrinsic muscles of the eye since the first edition of this book was published. Dr. Maddox has played a prominent part in the advancement of the subject and is largely responsible for familiarising English ophthalmologists with the methods adopted. No better introduction could be commended to the student than this work which is written in the author's well-known simple and lucid style. It is a curious fact that ophthalmologists in general have a positive abhorrence of mathematics. Formulæ are taboo and trigonometrical signs anathema. Dr. Maddox is a pharmacist of the first order—his mathematical pills are sugar-coated and on occasion richly gilt. His ingenuity in giving ocular demonstration of his points by geometrical methods is great and is, perhaps, the chief cause of the popularity of his works. Not that these are lacking in originality, for this book, like his others, is full of skilful devices illustrating or demonstrating points of practical importance. It is unnecessary to discuss in detail the methods of treatment of latent muscular anomalies, and so on, as advocated by the author. They are those now generally accepted and the only criticism which we will permit ourselves is that this part of the work might be expanded somewhat with advantage. One word may be added as to the format of the book. It is a small book with a comparatively high price. Its apparent size is increased by the use of large type and thick paper. It is not well bound. It would be far more attractive in appearance and pleasanter to read if it were better printed on thinner paper and more efficiently bound.

Manual of Psychiatry. By J. ROGUES DE FURSAC. An authorised translation from the French, by A. J. ROSANOFF. Second American edition from the second French edition. London: Chapman and Hall. 1908. Pp. 406. Price 10*s.* 6*d.* net.—The present edition of this well-known work embodies all the additions contained in the second French edition together with certain notes of the translator on psychotherapy, the after-care of the insane, Meyer's theory of dementia præcox, the technique of

lumbar puncture, and a number of other minor points. The first part of the work deals with general psychiatry, with special chapters upon etiology, symptomatology, the examination of patients, and therapeutics. The second part of the book is concerned with special psychiatry, and the grouping of symptoms as it occurs in the various categories. In psychiatry there is doubtless much to be said for such an arrangement. For the most part mental disease has in practice to be classified and dealt with according to the prominence of certain symptoms, while our knowledge of structural alteration is in such an elementary condition that scientific classification is of scarcely more than academic interest. Dr. de Fursac has drawn his clinical pictures with a masterly hand, with the result that the student is put in possession of clear conceptions of the various symptoms with which he may meet in practice. The classification adopted is that of Kraepelin with but slight modification and is, on the whole, as satisfactory as it is at present possible to be. Considerable space is devoted to the subject of dementia præcox and a clear account of its forms is given. Objection is, however, taken to both terms of the title which has unfortunately been allocated to the syndrome and which is, there is but small doubt, the most fruitful cause of the controversy which still rages around this vexed question. We cannot but regard it as a pity that this work, so admirably suited for students, contains no chapter upon lunacy law as it obtains in this country. For the practitioner who does not particularly devote himself to lunacy a lucid exposition in his textbook of the law is all-important. A book which contains no such exposition is, from his point of view, incomplete.

JOURNALS.

The Journal of Anatomy and Physiology. Conducted by Sir WILLIAM TURNER, K.C.B.; ALEXANDER MACALISTER, University of Cambridge; D. J. CUNNINGHAM, University of Edinburgh; ARTHUR THOMSON, University of Oxford; and ARTHUR KEITH, Royal College of Surgeons of England. Vol. XLIII. Third series. Vol. IV. Part II. January, 1909. London: Charles Griffin and Co. Annual subscription 2l. post free.—The articles contained in this number of the journal are: 1. The Form of the Rectum, by Professor A. M. Paterson of Liverpool, with a drawing in the text. The author summarises and criticises the views of Houston, O'Beirne, and continental anatomists, and contends that while the upper part of the rectum may contain fæces prior to defæcation the lower part below the thickened band of circular muscular fibres which corresponds to Houston's valve No. 3 is only a duct for the emission of the fæces. 2. Description of a Model of the Brain of a Fœtal Cat, 20 millimetres in length, by Peter Thompson, M.D. Vict., professor of anatomy King's College, London, with eight illustrations in the text. 3. The Variability of the Last Lumbar Vertebra, with 17 illustrations in the text, by T. Manners-Smith, M.A., M.B. Cantab., lecturer on anatomy, Downing College, Cambridge. 4. Description of Three Chinese Brains, presented by Dr. F. W. Mott, F.R.S., to the Museum of the Royal College of Surgeons of England, by E. H. J. Schuster, M.A., D.Sc., Fellow of New College, Oxford. The convolutions are extraordinarily well developed. 5. The Mechanical and Physiological Effects of an Excessive Dilatation and Elongation of the Colon, by A. Campbell Geddes, M.D. Edin., demonstrator of anatomy, University of Edinburgh, with four drawings in the text. The heart, the liver, the left lung, and the kidneys were displaced. The right lung was shortened. The stomach was distorted. There were a condition of general extra-abdominal venous congestion and hypertrophy of the heart. 6. A case of Abnormally Placed Kidney is described by James Miller, D.Sc. Birm., M.S. A photograph of a Paramastoid Process is given by W. Ramsay Smith, D.Sc. Adel., M.B. Edin., and a description of a Duodenal Pouch, by Douglas G. Reid, M.B., Ch.B. Edin.

Proceedings of the Royal Society of Medicine. Vol. II., No. 2. December, 1908. London: Longmans, Green, and Co.—This number opens with a very interesting paper by Mr. R. Gill on Chloroform Action, which was read at the inaugural meeting of the Section of Anæsthetics. Mr. Gill's theory is based on clinical observation of 4000 cases and on experiments with chloroform and fresh blood *in vitro*. He is convinced that all the so-called direct actions of chloroform—viz., respiratory acceleration, unconsciousness, and muscular atony (which occur in chloroform anæsthesia)—and discolouration of the blood (which occurs in chloroform narcosis) are really indirect results of the de-oxygenation of the blood by chloroform which very readily combines with, and is decomposed by, nascent oxygen. He quoted interesting experiments in support of this view which is criticised by Dr. J. Blumfeld and controverted by Dr. Dudley W. Buxton who advances evidence from the physiological laboratory in support of the direct action of chloroform on tissues other than the blood. In the Section for the Study of Disease in Children Mr. D. C. L. Fitzwilliams describes at some length a rare case of congenital scoliosis, and a good proportion of the remaining cases is contributed by Dr. George Carpenter who reports some interesting malformations of bone. In the Clinical Section there is a note by Mr. F. E. Fenton of a case of von Recklinghausen's disease treated by fibrolysin with appreciable diminution in the tumours. In the Dermatological Section Dr. Arthur Whitfield contributes an important paper on Multiple Inflammatory Nodules of the Hypoderm, and Dr. J. Galloway and Mr. Kenneth W. Goadby together describe the cultural characters and appearance of an unusual bacillus found in the lesions of a case of rosacea. Sir Malcolm Morris and Dr. L. Nicholls report a case of leprosy treated with benefit by a vaccine prepared from one of the patient's nodules in combination with x rays. The Electro-Therapeutical Section is occupied by a discussion on X Ray Dermatitis and its Prevention which is opened with unique authority by Mr. J. Hall-Edwards. He is convinced of the existence of special susceptibility to the disease in some persons, but says that few of the early systematic investigators of x rays escaped some dermatitis. Since preventive measures have been adopted, however, no serious cases have occurred. He describes the pathological changes of the bones produced in his own hands, photographs of which before and after amputation are reproduced in illustration. He concludes by giving concise rules for the prevention of the disease, which include a recommendation that the x ray room should be large and well ventilated. In the Epidemiological Section Dr. W. Butler writes on the Intermittent Infectiousness of Scarlet Fever. The Laryngological Section is occupied by reports of cases. In the Medical Section Dr. W. P. Herringham and Dr. F. Womack examine the Value of the Sphygmomanometer as a Test of Blood Pressure, concluding that at present the readings cannot be analysed satisfactorily into the factors of the resistance of the blood pressure and the resistance of the artery wall; the paper is followed by the report of a brilliant discussion. The chief contribution to the Obstetrical and Gynæcological Section is a useful analysis of "a second hundred cases of operation for fibro-myoma uteri, with special reference to their degenerations and local complications," by Dr. Mary Scharlieb. In the Odontological Section Mr. J. F. Colyer writes on Adenoids and the Feeding of Infants in Relation to the Growth of the Jaws. In the Pathological Section Mr. S. G. Shattock describes

a case suggesting the existence of "Idiopathic Dilatation and Hypertrophy" of the Urinary Bladder. The Surgical Section contains the paper by Mr. C. B. Keetley on the Surgical Value of the Appendix, which aroused considerable interest at the time of its reading and its publication in our columns. In the Therapeutical and Pharmacological Section Dr. W. E. Dixon with Dr. W. Harvey discusses the Treatment of Acute Toxæmias, and Dr. A. F. Hertz with Mr. F. Cook and Mr. E. G. Schlesinger the Action of Saline Purgatives. It must be added that the second volume of these Proceedings shows no falling off from the high level of editing and printing which was attained in the first. They remain a credit to British medicine.

New Inventions.

THE "SNOOK" X RAY APPARATUS.

WE have had the opportunity of witnessing the working of this apparatus at Messrs. Newton and Co.'s showrooms, 3, Fleet-street, London, E.C., and the results seem to show that a very important advance in regard to the technique of x ray production has been made. The machine is the invention of Mr. H. Clyde Snook of Philadelphia, and the chief advantages claimed for it are (1) extreme simplicity, the machine requiring no attention beyond occasional oiling; (2) the large amount of current obtainable for the x ray tube and the large amount of variation available (any current from 1 to 60 milliampères being obtained by simply moving the switch handle); (3) the comparatively small amount of primary current required; and (4) the complete absence of reverse current rendering valve tubes unnecessary, thus greatly prolonging the life of the x ray tube while improving the definition of the image. The machine consists of a motor converter driven from the continuous current mains and supplying sinusoidal current to a step-up transformer. This machine is self-oiling and runs for months without attention. Where the current from the mains is alternating an alternating dynamo is substituted for the motor converter and is driven by an independent motor. This also is self-oiling and needs no attention except to fill up the oil cups at long intervals. The step-up transformer is immersed bodily in a galvanised iron tank filled with an insulating oil. The whole is hermetically sealed and never requires any attention whatever. Three of these transformers have recently been sent over 7000 miles without a drop of oil being spilled or the instrument being damaged in any way. This transformer supplies a sinusoidal current of 70,000 to 100,000 volts which can be regulated as required by means of an adjustable resistance in the primary circuit. Attached to the motor converter is a secondary commutator or rectifier which transmits the secondary charge and renders it absolutely unidirectional. This being carried on the axle of the motor-converter, which supplies the sinusoidal current, cannot get out of step and also requires no attention, and the result is a perfectly steady discharge of uni-directional current. Furthermore, the transformer being of the closed circuit type, is vastly more efficient than an induction coil. Using some 25 ampères at (say) 200 volts in the primary circuit a current of 60 milliampères or more through an x ray tube of 3 to 4 inches spark gap is easily obtained. To get the same result with the most efficient induction coil made takes some 60 to 70 ampères, working with a three-pole electrolytic break. The results already gained with this machine have excited the greatest admiration and not the least important points in favour of its adoption are a very decided economy in x ray tubes owing to the absence of reverse current and a considerable saving of time.

CENTRAL MIDWIVES BOARD.

A MEETING of the Central Midwives Board was held at Caxton House, Westminster, on Jan. 21st, Dr. F. H. CHAMPNEYS being in the chair.

The CHAIRMAN announced that he had received from Miss J. Wilson a letter stating that she had resigned her place on the Board as a protest against the absence of any certified midwife on the Departmental Committee appointed to consider the working of the Midwives Act. The Chairman then proposed a motion stating that the Board heard with great regret of the resignation of Miss Wilson and expressing its appreciation of her work, concluding with the words that "her loss is irreparable."—This motion was agreed to unanimously.

Mr. E. PARKER YOUNG moved that the following words be added to the Chairman's resolution, that the Board "profoundly sympathises with her for the reasons that induced her to resign."

On being put to the vote 4 voted for and 4 against and the motion was lost by the Chairman's vote.

Mr. PARKER YOUNG said that since the Departmental Committee had been appointed already one addition had been made, that of a medical officer of health. He moved;—

That the Lord President of the Council be respectfully requested to consider the advisability of adding to the Departmental Committee representatives of the interests of general medical practitioners and midwives, as the Board consider that such additions would greatly enhance the value of the report eventually come to by that committee.

Dr. S. B. ATKINSON, in seconding the motion, said that there was right and also reason in it.

Mr. J. WARD COUSINS, in supporting the motion, said they must bring every influence to bear towards healing the differences between medical practitioners and midwives in the country. He thought it was placing too much responsibility on the chairman of their Board to represent the whole medical profession on one of the most dangerous departmental committees ever appointed. If one or two practitioners were placed on that committee it would be an assistance to the chairman in questions which a consultant could not know about. If the committee succeeded in its work it would heal the differences between medical men and midwives which were obstructing the working of the Midwives Act.

Miss R. PAGET thanked Mr. Parker Young for including in his motion the suggestion of a representative of the midwives being added to the committee.

Sir WILLIAM J. SINCLAIR deprecated the tendency of the Board to interfere in the squabbles between medical men and midwives. Matters were not so bad in the north of England as Mr. Ward Cousins had described in the south. In the north there was a clear improvement in the relations between midwives and medical men and he thought it was a subject that should be dealt with by the medical press. By means of leading articles in THE LANCET and *British Medical Journal* all that was wanted could be effected. By means of such leading articles public opinion could be guided and professional opinion could be expressed and medical practitioners who were interested could state their views in the medical journals. In that manner influence would be brought to bear on the Lord President of the Council. The Board had no right to dictate to the Lord President of the Privy Council and he (Sir William Sinclair) strongly protested against the action proposed to be taken by the Board in matters which did not concern it.

Mr. PARKER YOUNG said that Sir William Sinclair thought the Board ought not to meddle in this matter but the Board was constituted to administer the Midwives Act. They heard of midwives sending to eight or nine medical men before they could get one to attend and yet the Board did nothing towards remedying such a state of things. It was admitted that something should be done to secure a clause in the Act insuring the payment of medical men called in by midwives. Sir William Sinclair said that matters were not so bad as had been represented by Mr. Ward Cousins, but he (Mr. Parker Young) said that matters were getting worse. Sir William Sinclair did not belong to the class of general practitioner, he stood above them on a pedestal. The general practitioner knew where the shoe pinched and so did the midwives, and it was only fair and just that in framing any additional Act the question should be gone into thoroughly and not left to the press.

On being put to the vote the motion was carried.

Sir WILLIAM SINCLAIR explained that it was a mistake to suppose that he was on a pedestal because he lived in most intimate relations with the busiest medical practitioners in his district and knew their difficulties and their opinions.

A letter was considered from Dr. A. Stookes of Liverpool on behalf of the medical board of the Liverpool Maternity Hospital, as to the system of teaching adopted at that

institution with regard to the number of vaginal examinations to be made. The Board decided that Dr. Stookes should be informed that the system of teaching with regard to vaginal examinations adopted at the Liverpool Maternity Hospital appeared to comply with the rules of the Board.

A letter was considered from the secretary of St. Mary's Hospitals, Manchester, inquiring whether the Board's resolution as to the necessity of having 20 distinct cases for each candidate was meant to be retrospective so far as regards repeated vaginal examinations. The Board decided that the secretary of St. Mary's Hospitals, Manchester, should be informed that the resolution referred to was not meant to be retrospective.

A letter was read from Dr. G. C. Taylor, county medical officer of Berkshire, as to the necessity of advising medical help in a case of premature birth. The Board decided that Dr. Taylor should be informed that in the circumstances mentioned it was unnecessary to advise medical help unless there was some complication present.

MEDICINE AND THE LAW.

Three Months' Hard Labour for Peculiar People.

Mr. Justice Grantham at the Old Bailey recently sentenced to three months' hard labour a married couple of the name of Horsnall, members of the sect of "Peculiar People," whose four-year-old daughter had been allowed by them to die without medical aid being procured. The case, of which the preliminary stages of inquest and magisterial inquiry have been fully reported in the newspapers, illustrated well the difficulty of dealing with this absolutely unreasonable and perverse religious sect. The child died from bronchitis and pneumonia following measles; that is to say, there had been illness accompanied by a rash which the elders of the sect took to be measles, and which had disappeared some time before death took place. In the circumstances the medical evidence relating to the possibility or probability of the neglect of medical assistance having accelerated the child's end was to the effect which might naturally be expected. It could not be proved that the occurrence of bronchitis and pneumonia would have been prevented by the attendance of a medical practitioner but only that precautions such as a medical man would have ordered would have rendered them very much less likely to supervene. It could not be proved that a medical man could have saved the child's life after the complications mentioned had made her dangerous condition plain even to her parents and to the elders of the sect who held special services over her, but it could be proved that there were measures usual in such cases which if taken in time must have caused relief and of which the natural result—if it were not too late—would be the eventual recovery of the patient. It is just possible that the sentence of imprisonment with hard labour passed on the Horsnalls may act as a deterrent to some other Peculiar People on some future occasion, but it is too much to expect members of the sect to appreciate the fact that the New Testament upon which they rely certainly affords them no authority for defiance of the law of the land. Their unreasoning inconsistency was shown in this case by the fact that the wife of an elder, who was engaged in praying over and anointing the child, recommended the application of warm oiled flannels and the use of a bronchitis kettle, acts of physical interference apparently not disapproved of, although the mother refused to call in a medical man. As Mr. Justice Grantham observed, "These people glory in their beliefs which they obtain by narrow interpretations of Biblical passages. They would rather sacrifice their children than their pet hobby." His lordship added, "It is wicked that they should let their children die when, by taking ordinary precautions which God has placed in their power, they would save them."

An Offence under the Cremation Act, 1902.

At Lambeth police court recently a woman named Webb was fined £10 with 2*s.* costs for carrying out the burning of the body of a child without the provisions of the Cremation Act, 1902, having been complied with. The remains were those of the stillborn child of another woman, who soon after being delivered wrapped them up in brown paper and gave them to a female friend who took them with half a sovereign to the defendant's house. Webb suggested that the body ought to be taken to an undertaker who might bury it, but the undertaker, whom they then visited together, very properly refused to have anything to do with the matter if there was to be no certificate forthcoming. The two women then returned to the defendant's house and as she undertook to get rid of the body it was left with her and she admitted afterwards that she burnt it that night in her kitchen stove. The magistrate in fining her referred to the apparent hardship entailed upon her by her effort to rid another of responsibilities, but pointed out the danger which she ran deliberately in undertaking such a task without any knowledge of the history of the birth.

Prosecutions under the Dentists Act, 1878.

At Rhyl recently three defendants, Richard Hanlon, Thomas Thurgood, and A. George, practising dentistry but not upon the Dentists Register, were prosecuted successfully for using additions or descriptions in their advertisements implying qualifications to practise dentistry within the meaning of the Dentists Act. Against Hanlon there were two cases, the first arising out of an advertisement: "Artificial teeth fitted on gold, platinum, or vulcanite. Best materials and workmanship guaranteed. Crown, bridge work, and pivot teeth fitted where the roots are healthy. Teeth extracted painlessly with the latest anæsthetics, nitrous oxide and oxygen gas, ethyl chloride, &c. R. Hanlon makes a speciality of children's teeth. Painless extractions a speciality. Any make of teeth repaired or remodelled." On this summons the defendant was convicted by the bench and fined 10*s.*, with £1 12*s.* costs and £1 1*s.* advocate's fee, and the second summons was withdrawn on payment of costs. In the case against George, the advertisement which formed the subject of the charge was as follows: "The Artificial Tooth Institute, —— street, Rhyl. Painless system. Teeth mounted on gold and platina. Old cases remodelled and repaired. George's artificial teeth." He was ordered to pay a fine of 10*s.* and costs. Thurgood's advertisement was as follows: "Artificial teeth, English and American. Attendance daily, 9 A.M. to 8 P.M. Advice free. American crown, bridge, and bar work. Inlays, &c. Thurgood's painless system without the use of gas or cocaine. Badly fitting cases successfully remodelled. Teeth mounted on gold, platinum, ebonite, corallite, &c. All work guaranteed." A similar penalty of 10*s.* with costs was imposed in this case also. The dentists practising at Rhyl and the London and Counties Medical Protection Society, which has so successfully enabled them to deal with illegal competition of the class described, are to be congratulated.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 29th, 1831.

DIABETES IN HORSES.

To the Editor of THE LANCET.

SIR,—In your excellent publication, I observed, a short while ago, a paragraph respecting diabetes in horses. It is very common amongst horses that are fed on oats that have been kiln dried, and particularly so with the horses employed in the collieries in the north of England. Medicine, however, is rarely necessary to cure it, as a change in the food generally removes the complaint almost immediately.

I am, Sir, your obedient servant,

X.

*** The provincial name is the "jawpiss."

AT a highly respectable meeting of surgeons, held at Wakefield on the 3rd inst., a vote of thanks was given to the Editor of THE LANCET, and the Editor of the *Medico-Chirurgical Review*, "For their exertions, and successful exposure of the mal-practice" of the quack John Long.

THE LANCET.

LONDON: SATURDAY, JANUARY 30, 1909.

The Exploitation of the Medical Profession.

WE published last week two letters, on different topics it is true, but both of which refer primarily to one subject, the exploitation of the medical profession by officialism and by Parliament. Dr. HOWARD DISTIN complained that, as members of the honorary medical staff of the Enfield Cottage Hospital, he and his colleagues are compelled to give unpaid evidence at inquests held on the bodies of patients who have died there; while "BETA" called our attention to the attempts of boards of guardians to extract various certificates, for which they do not intend to pay, from parochial medical officers. The state of feeling out of which these attempts arise is one of which it might be said, in the words of a formula of much popularity many years ago, "that it has increased, is increasing, and ought to be diminished"; but the question as to the best means of effecting the diminution is one which appears to be still unsolved. The immediate source of the evil complained of is, and always has been, the want of professional representation in Parliament, where medical men until recently had neither champions nor representatives, and where even now their slender representation is wholly insufficient to permit of any effective expression of their needs. The legal profession, on the other hand, has always been abundantly, if not excessively, represented, and hence a state of feeling has gradually been induced in which it seems just and proper to the average Member of Parliament that every lawyer should be paid, even to excess, for every official act which he can be called upon to do, but that every medical man should be at the service of the public and should do everything that is asked of him without payment. It matters nothing that what is demanded represents the results of long and costly education in a profession which has been entered as a means of livelihood; it matters nothing that the practitioner upon whom the burden is cast has an abundance of other calls upon his time; it matters nothing that correct performance of the required service, as in the case of certificates of the cause of death, is of the highest importance to the community. The only essential fact in the case is that a demand is to be made upon the medical profession, and that the medical profession, as a body, has no friends beyond its own ranks. The most panic-stricken seekers for advice and for remedies when illness attacks themselves or their families are often the first to oppose all public recognition of medical service, and all proposals to extend a proper remuneration to those by whom it is rendered.

Such, as we have said, is the immediate source of the evil, but there is still a deeper source to be considered, and that is ignorance, depending upon the extent to which schools and universities have failed to keep the population abreast of the modern developments of knowledge. Even with regard to modern chemistry and modern electricity, as well as with regard to the sciences on which the progress of medicine is now chiefly based, the mind of the average citizen, of the average clergyman, of the average lawyer, even of the average politician or Member of Parliament, is commonly a blank. CHARLES DICKENS in "Bleak House" drew a striking picture of ignorance of common things carried to the nth degree. "It must," he wrote, "be a strange state to be like Jo! To shuffle through the streets, unfamiliar with the shapes, and in utter darkness as to the meaning of those mysterious symbols so abundant over the shops, and at the corners of streets, and on the doors, and in the windows! To see people read, and to see people write, and to see the postmen deliver letters, and not to have the least idea of all that language—to be, to every scrap of it, stone blind and dumb." This, or something not very unlike this, is the mental condition of large sections of the public with regard to branches of science which the medical profession is bound to cultivate—branches of science which are affording daily increasing hopes of great and substantial victories over disease. How many men are there, not "men in the street," but men in a first-class railway carriage, who would be able to follow with intelligent interest a discussion of the problems which are presented by the bacteriology of tuberculosis, problems on the correct solution of which the lives of thousands of the present and of future generations will depend? How many are there who have any adequate idea of the part played by minute organisms, animal and vegetable, in the history of creation, or in the course of the daily lives of themselves and their contemporaries? How many are there who have any conception of the nature and extent of the changes which have revolutionised surgery within the memory of men still active in the world, and how many who understand the nature of the mental processes by which this revolution has been brought about, the exactness of research, the patience of experimentation, the devotion to truth, the ceaseless labour, of which it has been the outcome? Nothing equal to the modern growth of medical science has been witnessed in the history of the world, so far as that history is known to us; and the medical profession will never occupy its right place in society, or be regarded in any more adequate light than as fabricators of pills and draughts, until the nature of its work is better understood than it is at present. We think the dawn of a better period is discernible: but it is none the less certain that we shall still have long to wait for the fulness of day.

In the meanwhile, may we not say that the time has come at which it becomes a duty for the profession to assert itself, and to strive, by all reasonable means, to claim and to assume that position among the pioneers of knowledge to which it is clearly entitled? The amount of gratuitous service now demanded from its members has become excessive, and not only should all additions to the burden be strenuously resisted, but endeavours should be made to cast off those which in time past have been more or less resignedly borne. In the present day the chief enemy to be contended against is officialism; and when we say

that the chief centre of hostile officialism, as far as the profession is concerned, is necessarily the Local Government Board, we are not reflecting upon the work done by that Board so much as calling attention to the fact that it has too much to do. We do not impute, for example, hostility to the medical profession to the President, who is too large-minded and sagacious for such sentiments, and still less to the Principal Medical Officer who, we are quite certain, would support the just claims of his professional brethren as far as his influence would extend. But among the permanent official sthere is a strong opposition to medical claims for proper remuneration, a position which has recently become conspicuous in regard to vaccination fees. We may daily expect the report of the Royal Commission on the Poor-law, and it will hardly be possible, in view of the abuses now universally known to exist, that legislation upon the subject can be long delayed. It has been stated that the Commission will recommend the abolition of boards of guardians and the substitution for them of some different kind of authority the nature of which will, of course, be of the very first importance to all parochial medical officers. The medical service has greatly suffered hitherto from the ignorance and incapacity of many of the persons by whom the officers have been elected and controlled and from the various devices by which typical "guardians" have placed themselves in opposition to obvious requirements. The efforts now being commenced to overcome tuberculosis, the efforts to secure a better standard of health and capacity among school children, the efforts to arrest the enormous mortality prevailing among infants, are all undertakings the success of which must depend, primarily, upon the willing and intelligent coöperation of the parochial medical officer, upon his knowledge of the people and the conditions of his district, and upon the character of his endeavours to deal with the various evils against which he will be required to contend. In these circumstances it becomes the duty of the profession to act with decision and in harmony, to insist upon due respect being paid to their just claims, and to cause it to be acknowledged that the labourer is worthy of his hire. The case will illustrate the old fable of the bundle of sticks; and if the profession, in every locality, will present a united front to those who would exploit them it is practically certain that both Parliament and public bodies would be compelled to admit the validity of their claims.

The Scientific Temperament.

OUR ancestors' description of the sanguine, melancholic, bilious, and phlegmatic temperaments may seem to us in the present day a fanciful development of an absurd and discredited system of pathology, and there is no doubt that so far as the division rests on a basis of excess or defect of bile or blood or phlegm it is a fit subject for ridicule. Yet in spite of the implied postulate of certain political schemes that all men are equal and of equal worth to the State, it remains an undoubted fact that individuals differ from one another in certain fundamental, if ill understood, qualities which affect their whole relationship to their fellows and to the world around them. These peculiarities of constitution, which are easily recognisable in their extreme developments but which merge insensibly into the general average type of the nation, may be called temperaments, without any connotation of varying mixtures of chemical substances in the clay of which their possessors are built. Yet it is not impossible that the advance of physiological science may one day show that they have really a chemical basis. The peculiar mental states that are met with in myxœdematous patients and in the subjects of Graves's disease are instances in which defect or excess of a chemical product lies at the root of an intellectual change, and some alienists hold that many manifestations of insanity are toxic in origin. In other instances, however, it seems difficult to suppose a similar origin for peculiarities of temperament. Two great types of such peculiarity of mental bias, if we may so term it, are to be seen in the types of character which we contrast as the poetical and the critical—the one compact of imagination, emotion, synthetic and creative power, the other tending rather to doubt, to analysis, and to rejection of all that cannot be verified by the testimony of the senses. The scientific temperament, a fairly well-marked variety, might seem at first sight to fall within the limits of the critical disposition but further reflection shows that this is not entirely true. It is undeniable that the scientific mind is pre-eminently critical in its outlook, that it demands strict proof of its data, and carefully rejects those embroideries of fable with which the ignorant are wont to surround all phenomena which they cannot understand. It seeks to separate the wheat from the chaff; to dissipate the atmosphere of superstition and to overthrow the many "idols," if we may so pervert BACON'S phrase, which still hold sway in the minds of men. It seeks for laws in everything, for those underlying uniformities which are discoverable in the world of phenomena around us and the coördination of which constitutes the method of scientific progress. Yet it is not on this method of observation and experiment alone that we must rely for the greatest advances in knowledge. For the coördination of scattered observations, for the recognition of the laws of their appearance, we have need of that faculty of imagination which we hold to be typical of the poetical rather than of the critical temperament. Great as are the merits of the patient worker who accumulates the facts, the stones of the future building, far greater is the achievement of the thinker who by a flash of intuition binds them into a compact theory and thus completes the edifice with the materials provided by research. When in rare instances we have the two powers combined—when, as in the case of CHARLES DARWIN, the author of an illuminating conception possesses also the untiring industry for collecting data to support his hypothesis, then we have the culminating point of the scientific temperament, the scientific genius.

A good example of the scientific temperament may be found portrayed in MR. FRANCIS GALTON'S recently published book of reminiscences.[1] In accordance with his well-known views on heredity he shows us first that he sprang from a scientific stock, being related to the Darwin family on his

[1] Memories of My Life, by Francis Galton, F.R.S., D.C.L. Oxon., Hon. Sc.D. Camb., Hon. Fellow Trinity College, Cambridge; Methuen and Co. pp. 339, price 10s. 6d. net.

mother's side through his maternal grandfather Dr. ERASMUS DARWIN, while on his father's side he also recalls a grandfather of scientific attainments. The innate abilities thence derived were developed by a medical training, while later at Cambridge Mr. GALTON was brought into contact with mathematicians of the greatest eminence. A course of travel, one of the most useful of mental stimuli, next fell to his lot, and on returning from a voyage of pleasure he showed his scientific bent by undertaking a work of exploration, under the ægis of the Royal Geographical Society, in South-West Africa. As the result of his experiences he compiled a very useful manual of advice to travellers in different parts of the world. Studies and inventions in the field of physical science next occupied his attention and he took a leading part in the establishment of the laboratories at Kew and in the work of standardising scientific instruments there carried on. True to the dictates of science he turned his attention to that most difficult problem which closely affects the lives of all men and is still the field of much superstition—the study of the weather. Here he described and named the atmospherical condition now familiarly known to all who study the weather forecasts, the anticyclone, and did much to put this field of knowledge on a rational basis. But as "the proper study of mankind is man," Mr. GALTON'S later researches lay in anatomical and physiological fields. He was a pioneer in recording accurate measurements of the living human body and in devising ingenious methods of applying mathematical principles to such unpromising subjects as sensations and reactions to stimuli. Applying his methods to small things as well as great, he was led to study the minute markings on the skin of the fingers and thence to develop the system of personal identification by finger-prints which has been so ably and successfully carried into actual practice by Sir EDWARD HENRY, the present Chief Commissioner of Police.

The last great study of Mr. GALTON'S life has been that of racial improvement or eugenics. It is almost impossible to imagine a more difficult subject for the application of scientific procedure, for while it would be possible in a despotically governed State to breed human beings for the development of some special characteristic, it would even there be difficult to select ideal parents for the procreation of such a complex whole as the perfect citizen. To apportion relative marks for physical development, for intellectual ability, and for moral excellence in living examples of the genus *Homo sapiens* would be an arduous task, and to breed specimens pre-eminent in all alike would be beyond the range of the most enlightened despot. And in actual life we are confronted by the practical barriers of a social freedom which must not be curtailed and of a trend of sentiment which opposes all measures too rudely restrictive of the individual's chance of enjoying any pleasure which is attainable by others. To place any check upon the marriage of the unfit seems at present regarded as iniquitous, and the very segregation for indefinite periods of criminals who have over and again proved themselves inveterate beasts of prey is too strong a measure for a sentimental generation. Yet the necessity of arresting physical deterioration is widely recognised and all honour is due to those scientific thinkers who, like Mr. GALTON, devote themselves to the study of these difficult problems. Slowly, but we hope surely, the scientific mode of viewing social facts is spreading; it is distinguishable in many directions and in widely differing classes of society. In course of time perhaps even legislation may be guided by similar principles, at least in those fields in which our legislators can find no scope for the more urgent duty of securing a tactical party advantage.

The Relation of the Public Schools to the Preliminary Scientific Studies of the Medical Curriculum.

WITH the continuous expansion of our knowledge in every branch of science it is at least possible, and to many it appears inevitable, that the general education of boys and girls destined for one or another of the scientific callings must give way at an earlier period than has hitherto been necessary to the special training which is to be the stock-in-trade of their various careers. This means that we have to ask the pedagogue to hold the balance squarely between the claims of science and the claims of the humanities upon the school hours of those of the coming generation who are to practise the profession of medicine; and as a lack of culture in its practitioners is only less deplorable than is a non-development of the scientific habit of thought it will be seen that we ask a good deal. None will be disposed to deny the range of influence which a capable teacher of the elements of science can exert over a lad during the last two years of school life, for by the time he has reached that period of his education the pupil should have learnt how to learn, and his mind should be in its most receptive state—so much plastic material ready to be moulded into methods of accurate observation, and indued with a right appreciation of the experimental method and all that it entails. If the student brings such a training with him to a medical school he has gained a solid and practical advantage from his school-days beyond the expansion of his mind and its equipment with a store of knowledge. It is, in fact, to be desired in most cases that the school-boy who has elected to follow medicine should receive a grounding in the principles of chemistry and physics at least before he passes the "arts examination," which is the portal to his professional studies. Of course, if time is of no object to the student he can acquire this grounding after spending a full school life in general education, but if he desires to become a medical man at the average age (although this is now, we believe, nearly or over 26 years) he will make his path easier by beginning his scientific work soon after the age of 16.

Has the secondary school a more direct function in medical education than this? Is it to stop short always at speeding the medical student through the first portal? This important question occupied the Association of Public Schools' Science Masters at its recent meeting at the Merchant Taylors'

School,[1] when Mr. C. J. GARDINER of Cheltenham College opened a debate upon the Refusal of the General Medical Council to Recognise Public Schools for the Commencement of Medical Education, with a paper which stated what are regarded as the claims of certain public schools—viz., those which are prepared to provide suitable teaching and laboratory facilities—to be recognised by the Council as schools in which the first year's work of the student's curriculum may be properly carried out, which of course is no new question. Certain schools have provided facilities for teaching the biology, chemistry, and physics of the preliminary examinations, and have been recognised after inspection as suitable places for those studies by the Conjoint Examining Board of the Royal College of Physicians of London and the Royal College of Surgeons of England, and in some cases by the Medical Faculty of the University of Cambridge. These bodies admit school-boys to sit at the first professional examinations provided that they have attended certain classes in school after passing the arts examination qualifying them for the study of medicine. The General Medical Council, however, refuses to recognise the time thus spent in preliminary scientific studies at school as part of the statutory five years' training, and would therefore decline, if invited, to register such school-boys as medical students. The action of the Council is in accord with the widely held view that general education should be finished before medical education is begun, while as the supervising authority of the medical education of the country the Council is bound to object to any of the educational course being undertaken where its jurisdiction might not run in a satisfactory manner. It can be well understood that the science master deplores the break of continuity in the scientific studies of his pupils and the divorce from all other studies which a boy suffers if he leaves school is also to be regretted. Mr. GARDINER referred with indignation to the refusal of the Council to receive a deputation of his Association to discuss the matter, and declared that the policy of non-recognition was an insult to the public schools, but he was obviously unaware of the difficulties of the situation or of the anxious consideration which for several years has been given by the Council to the points at issue; and his arguments were upheld by several speakers who proved themselves but poorly acquainted with the facts, as witness the confusion between the British Medical Association and the General Medical Council, and the remarkable suggestion that one or other body was "a force of Protection seeking to bolster up the smaller medical schools to swell the entrance lists for their science courses by preventing boys from receiving the like instruction at the public schools." This sort of thing helps no one, and a better line of argument was that which pointed out the moral and disciplinary disadvantages of starting boys on the life of a medical school in a big city at the age of 16 or 17. We are satisfied, however, that the latter age is far below the average at which the medical student comes up to the hospital school, so that the argument is sentimental rather than practical.

The debate was brought to a conclusion by Mr. G. Q. ROBERTS, secretary of the St. Thomas's Hospital Medical School, who, speaking for his own school, said that the student who had passed his arts examination before leaving school and was capable of proceeding to pass a first professional examination on arrival at the hospital was the man they desired, for although the preliminary scientific subjects were taught at St. Thomas's Hospital the main work of medical education could only be begun when these had been negotiated by the student. Mr. ROBERTS then pointed out the well-known fact that as the registration of the medical student is not compulsory it is not necessary for science courses at a school to be recognised by the General Medical Council; it is sufficient that one of the statutory bodies able to grant a medical degree or diploma should accept the school teaching. Looked at from this point of view the grievance of the science masters becomes much smaller. We can quite sympathise with their desire to be in proper accord with the General Medical Council, but it must be remembered that they can do without the recognition of the Council if they can obtain that of any statutory body granting medical qualifications—that is to say, that they can, if they choose, range themselves on the side of the English Conjoint Board and of the Universities of Cambridge and London rather than on the side of the General Medical Council in a difference of opinion of long standing where reconciliation, alas! gets no nearer. The position of the Council is irreproachable. It is the central supervising authority in medical education, and must resent any different view being taken. But the English Conjoint, the protagonists on the other side of the dispute, claim, with long historical and practical arguments to support them, the supervision of the detailed training of their students. This difference of opinion is complicated with the questions of the compulsory registration of medical students, of the compulsory prolongation of the medical curriculum, and of the possible rearrangement of the periods of medical study; and we hope that the General Medical Council at its next session will have time to debate these interesting matters with an eye on practical and early developments.

[1] A short account of this meeting appeared in THE LANCET of Jan. 16th, 1909, p. 184.

Annotations.

"Ne quid nimis."

PRAYING TO DEATH.

IN company with many of our contemporaries we have received a remarkable printed circular signed "M. C." In this circular "M. C." tells us that he or she (in future we will call "M. C." "he") made earnest prayer that the Almighty would promptly "remove" the vivisector most likely to cause future suffering to innocent subjects. ("Remove" be it noted was the term used by certain political assassins some 26 years ago as a synonym for kill.) About a fortnight later, to use "M. C.'s" delicate phrase "one of our most distinguished medical scientists dropped." The classical instance of praying to death, it may interest "M. C." to know, is that of Arius, the arch-heretic of the fourth century. In the year 336 A.D. the Emperor Constantine ordered the then Bishop of Alexandria whose name was Alexander, and who had attained the age of 90 years, to receive Arius, who had been excommunicated, into the Church. This ordinance

was the cause of much heart-searching among the Church, and Alexander spent the night previous to the day for which the reception had been fixed in the great Church of Alexandria praying, and the words of his prayer were, "Either me or Arius, O, Lord!" On the following day, as Arius was proceeding to the church in procession for his reception, he was suddenly taken ill and died within about half an hour. "M. C.," however, is much less fair-minded than the Bishop of Alexandria, who was quite willing to pit his own life against that of Arius. The other classical instance of praying to death—but this prayer was made to a different deity—is to be found in that delightful romance "Sidonia the Sorceress." Sidonia, as everybody knows, prayed various people to death. Among others were the porter of the convent of which Sidonia was governor, and perhaps it will profit "M. C." to learn what appearances the body presented, as they were said to be significant of having been prayed to death. The appearances were these: "1. The face brown, green, and yellow, particularly about the *musculi frontales et temporales*. 2. The *musculi pectorales* so swelled, and the *cartilago ensiformis* so singularly raised, that the chest of the corpse touched the mouth. 3. From the *patella* of the left leg to the *malleolus externus* of the foot, all brown, green, and yellow, blended together. And on examination of the said corpse, Dr. Kukuck of Stargard affirmed and was ready to swear that no one tittle of the signature of Satan was wanting thereupon." "M. C." might inquire whether these appearances were present in the case of the distinguished scientist who "dropped." It would be interesting to know whether "M. C." has previously tried other ways of getting rid of people of whom he disapproves; for instance, there is the Icelandic method of the "sending," or the primitive and wideworld process of the wax image put down to melt slowly before the fire, or the image can be made of clay and placed in a running stream; but, on the whole, we think it kinder to assume that "M. C." is a lunatic. But as he may possibly proceed from mental methods of murder to those in which such carnal and earthly weapons as knife or revolver play a part, his friends should keep a careful eye on him.

THE FEAR OF EARTHQUAKES.

WE imagine that there are few serious "seismophobes" in this country, for history even a long way back does not record the occurrence of earth disturbances of any magnitude in the British Isles. Evidence, however, is not wanting that parts of the world are passing through a period of great internal activity and disturbance, and the continual records of such by the seismograph have produced in the minds of some people a certain feeling of alarm. It may be well to reflect, therefore, that although these islands may visibly shake as the result of a disturbance yet the centre of activity of that disturbance is usually remote and its effects here are, comparatively speaking, without harm. In this connexion it is interesting to recall the nature of the earth tremors experienced in this country in 1884 according to a description which appeared in THE LANCET of April 26th, 1884, p. 764. The earthquake, according to this account, occurred on April 22nd and was most distinctly felt in the metropolis in Cheapside, Fleet-street, and the Strand. So distinctly was the vibration felt in THE LANCET offices that "the compositors left their work in a body under the impression that the building was about to fall." The "cases" throughout the composing room shook, "causing each compositor to suppose that his neighbour was playing a practical joke; the gas-burners vibrated and the floor was felt distinctly to oscillate." This sudden motion produced in some "a feeling of slight nausea and giddiness," but no further disturbance occurred and "the men speedily returned to their work." There was no loss of life reported and the greatest damage to property occurred at Birmingham and Malden, but more particularly at Colchester. A similar shock was experienced about a hundred years before this date. With this record in front of us we may still reasonably hope to enjoy an immunity from earth convulsions having at any rate the awful intensity which gave rise to the appalling consequences recently experienced at Messina.

THE MEDICAL FACTOR IN OUR TENURE OF INDIA.

"STRENGTHEN, reinforce the medical arm," is the now unanimous recommendation of those directly interested in that great instrument of conciliation between the governing Briton and the subject Hindoo represented by medico-missionary enterprise. We have recently quoted[1] the opinion bequeathed to his successors in office by one of India's most sagacious Viceroys, Lord Lawrence, when, referring to the humanely inspired work of an able physician in the above-named service, he said, "Our Eastern Empire owes more to such men than to its regular officials"—men, to wit, whose intelligent solicitude for the health and material happiness of the poor among whom they lived and laboured did more to soften and to sweeten their lot and to convince them as to who were the best custodians of their interests than all the surveillance, departmental or municipal, traditionally practised by officials, however exemplary. "Immediate care for the body," particularly in special illness or epidemic diseases, is the best, as it is the first, mode of access to the sympathies and affection of the natives, insomuch that, as was powerfully put in evidence in the Missions Section of the Pan-Anglican Congress, Christianising effort made progress precisely in the degree in which that care had in the first instance been most effectively applied. When we read of the medico-missioner not only relieving pain, working cures, and arresting contagious or infective disease, but even mitigating the horrors of visitations like flood or famine, pressing into the humanitarian service the dispensary, the hospital, the convalescent home, in reinforcement of the orphanage, the school, and the workshop, we begin to realise what a potent factor towards conciliating the natives, what a mighty "first step" towards getting at the heads and hearts of the people is within the resources of Government. Striking illustration of the task to be thus faced and fulfilled was given in a lecture delivered in Edinburgh on Jan. 12th by Sir Thomas Raleigh, legal adviser to the Viceroy. With "The Mind of India" for his theme, he showed that by the lines hitherto followed we had failed to reach that "mind," mainly from an unsympathetic mode of addressing it, and from an imperfect realisation of where its interests, intellectual, moral, and religious, reposed. The day is long past when, with well-meaning but surely mistaken zeal, a missionary might be seen chastising a Hindoo boy for ignorance of "Paley's Evidences," but we are still far from appreciating or making practical allowance for the beliefs in which the indigenous population live and toil and die. To force the Hindoo mind into European moulds has hitherto succeeded only in creating suspicion and in alienating sympathy, while the problem still awaits solution of how to make the said mind develop on lines of its own under the complex conditions of the twentieth century. It is not enough that, for the Hindoo, the British Government stands for "justice, security, and peace." Something else is needed to penetrate the inner mind and to conciliate the sympathies and the affections. Education, hitherto open to the native shopkeeper or trader,

[1] THE LANCET, Dec. 19th, 1908, p. 1826.

while denied to the labouring poor, has had its turn but on a wrong system, which has created difficulties of its own. Approached through the English language and not through his vernacular the Indian youth took on an artificial culture under which he ceased to be a Hindoo and did not become a Christian. Quoting from Lord Curzon, Sir Thomas Raleigh indicated the check given to teaching in the vernacular "when the withering blight of Macaulay's rhetoric passed over the field of education in India"—a blight difficult to countervail, inasmuch as English is the passport to official preferment or employment, while the vernacular condemns the aspiring youth to a humbler and less lucrative career. Add to this the too great facilities open to such youth for professional qualification and we can account for the increasing army of the "educated unemployed" (what has been called the "academic proletariat") which promotes such noxious growths as political agitation and revolutionary journalism. Another of Sir Thomas Raleigh's remarks had reference to the comparative failure of Christianising effort—failure due to the "Western accretions" gathering round the Christianity inculcated. Christianity, oriental in its origin, has thus ceased to be oriental in form if not in substance, and, as presented by the average missionary, evokes but a partially sympathetic response. Christianity, according to Sir Thomas Raleigh, must be "orientalised again" if it is to find real and abiding converts in the East, and that can only be done by a special education on the missionary's part hitherto ignored or neglected. "The Founder of Christianity," said Lord Morley in his late speech in the House of Lords, "arose in an oriental country"—to which we may add that He appeared in the capacity, above all things, of the Healer, accompanying, oftener prefacing, His teaching by the prevention or cure of disease. It is by a reinforcement of the practice of the Great Exemplar, by the care for the body in its affliction and in its suffering, that the Christianising propaganda has hitherto achieved such success as has hitherto been vouchsafed it. Only by recognition of this, and by still further action on the same lines, will a higher measure of success be reached—success making for the consolidation and the permanence of our tenure of India, towards which lying ready to our hand we have few such potent instruments as the medical factor.

ENLARGEMENT OF CERVICAL GLANDS THE SOLE SIGN OF CANCER OF THE ŒSOPHAGUS.

IN the *Boston Medical and Surgical Journal* of Dec. 31st, 1908, Dr. O. Mitchell has reported the following case which shows the importance of enlargement of lymphatic glands as a sign of cancer in the absence of other signs. A farmer, aged 38 years, was admitted into hospital on Sept. 24th, 1907. He had suffered from scrofula in childhood but no glands suppurated. He had been losing flesh, though his appetite remained good. On examination his colour was good. Along the left sterno-mastoid muscle were marked nodular enlargements and on the right side were smaller enlargements. The patient first noticed them on May 1st. He complained of pain in them which radiated to the top of the head. The skin over them was moveable but congested. Inspection of the mouth, nose, and throat revealed nothing abnormal. Cervical adenitis was diagnosed and he was discharged unimproved. On Dec. 4th he was readmitted. He said that when he swallowed a lump seemed to come up his œsophagus. Examination of the throat and nose was negative. The percussion note in the upper part of the back on the right side was dull and on deep inspiration moist râles were heard. In the upper part of the back on the left side fine râles were heard. The front of the chest was clear. A systolic murmur was heard over the heart. The urine contained a trace of albumin and a few granular casts and epithelial cells. The patient complained of pain in the nodules which had considerably enlarged since his discharge and felt elastic, as though pus was present in the deeper portions. The following diagnoses were entertained:—1. Syphilis. There was no history or other signs of this disease. 2. Hodgkin's disease. This was negatived because of the inflammation and absence of enlarged lymphatic glands in other parts. 3. Cancer. There was no sore or other lesion on the skin or in the throat or mouth nor history pointing to a growth in the stomach or œsophagus. 4. Tuberculosis. This was diagnosed in consequence of the slow growth of the nodules, the history of scrofula, the pulmonary signs, a temperature higher in the afternoon than in the morning, the wasting, and the patient's statement that the nodules had decreased. A 5-inch incision was made over the posterior border of the sterno-mastoid muscle and the skin and fascia were divided. A number of nodules were removed and on microscopic examination showed typical carcinoma. Carcinoma of the œsophagus was then diagnosed. The patient was discharged in a fortnight improved as regards pain and local symptoms but with the wound unhealed. He became cachectic, and about 2½ months later began to vomit blood and had difficulty in swallowing. Other nodules developed in the cervical region and on the right side of the chest about the level of the tenth rib. Death occurred on August 11th, 1908. A necropsy could not be obtained, but the later symptoms showed that the primary growth must have been in the œsophagus, or possibly in the stomach. In his book on pathology Kaufmann states that in many cases of cancer of the œsophagus the cervical glands and connective tissue may be infiltrated, producing severe stenosis of the upper part of the œsophagus long before any manifestation of stenosis attributable to the primary growth occurs. He reports the case of a woman, aged 21 years, who had a tumour on the left side of the neck adherent to the vessels which was excised and on microscopic examination was found to be cancer. At the necropsy the primary growth was found to be a flat ulcerating growth, scarcely observable, in the upper part of the œsophagus. These cases show that when the cervical lymphatic glands are enlarged in adults cancer should be suspected, as the primary growth may be discoverable only after death.

CHILDBIRTH CUSTOMS.

ACCORDING to an ancient Jewish tradition, quoted by Sir John Pettus in his "Volatiles from the History of Adam and Eve" (1674), our first parents had 30 sons and 30 daughters. Old theologians were often at a loss to explain how the first-born of these was successfully brought into the world, seeing that neither father nor mother had any experience of midwifery. Astruc, the famous medical writer, in an "answer to a casuistical letter on the conduct of Adam and Eve at the birth of their first child," accuses his adversary of irreverence in wishing to know what was done with Cain's umbilical cord. Doubtless, according to Astruc, the knowledge of midwifery came by inspiration. A modern writer on a similar subject, Dr. De Vere Stacpoole, in his brilliant book "The Blue Lagoon," supposes that instinct comes to the aid of the entirely ignorant mother. Folklore, however, is constantly showing that all knowledge, such as that of the obstetric art or that of cookery, has arisen by an infinitely gradual process. All mammals have doubtless always severed the navel-string for the simple reason that the newly born must be freed from the placenta or that the mother must be freed from the child before the

extrusion of the after-birth. Many primitive savages, however, do not cut the navel-string off short. Among the Warramunga tribe of Central Australia it is allowed to drop off and is then tied round the child's neck to keep him quiet, being afterwards hidden by the child's mother's brother who is his tribal guardian. In the Bibinga tribe it is an aunt who severs the navel-string with a stone implement, afterwards ligaturing it with fur-string. The cord and after-birth are unceremoniously buried in the ground. In the Unmatjera tribe the navel is regarded as the door through which the spirit of an ancestor passes into the uterus of a pregnant woman in order to be born again in the person of her child. The above facts are taken from Messrs. Spencer and Gillen's well-known book on the "Northern Tribes of Central Australia." We can find parallels to them even in England, where old-fashioned midwives always treated, or still treat, the placenta in such a manner as to suggest savage tradition. They usually made haste to burn it, for if buried, said they, "it would be dug up by dogs." The phrase was, or is, invariable and suggests a savage belief rather than an actual risk. In a medical chap-book sold in London in 1791, we find it seriously stated that "if a navel string of a child, after it is cut, do chance to touch ground before it be burned, the same child will not be able to keep or hold his or her water, neither night nor day, a thing very true and known." The navel in Scripture is spoken of as a seat of strength. "His force is in the navel of his belly," says the Book of Job in reference to behemoth, and Proverbs speaks of piety being "health" to the navel and marrow. Ezekiel addresses Jerusalem "under the similitude of a wretched infant," exposed at birth to perish in the desert. "When thou wast born, thy navel was not cut," says he, "neither wast thou washed in water to supple thee." And again, "Thy father was an Amorite and thy mother an Hittite," which passage apparently implies that these people exposed some of their children at birth.

THE REPRODUCTION OF A BONE.

IN the *Archives de Médecine Navale* for November last Dr. Pfihl, a medical officer of high rank in the French Navy, reports a case of what he describes as "Complete Regeneration of the Distal Phalanx of the Right Index Finger." Called in to attend a youth, aged 14½ years, in the autumn of 1894 he found his patient suffering from a whitlow which was the result of a sub-ungual pustule due to varicella. The signs of acute inflammation were all present. The part was tumefied, painful, and thick pus exuded from a small incision which had been made five days previously. A probe introduced through this opening impinged upon denuded bone. The inflammatory action had extended to the matrix of the nail which was almost entirely detached. In these circumstances intervention seemed to be necessary and accordingly Dr. Pfihl, having procured local anæsthesia by means of cocaine, made a free incision in the median line on the palmar aspect of the third phalanx and then proceeded to perform a minute curettage of the soft parts. He next washed the cavity out with oxygenated water, and, having removed the nail which was now merely a foreign body, concluded by introducing into the cavity a pledget of iodoformed gauze. In spite, however, of these measures the necrosis continued its work and a week later the surgeon was able to lift the bone out with a pair of forceps. It was complete, just as its congener appears on a skeleton, but Dr. Pfihl does not say whether any of the periosteum remained adherent to it. In a month cicatrisation was accomplished without any deformity of the soft parts, but the end of the phalanx remained spatulate and flabby, and Dr. Pfihl almost reproached himself for not having sacrificed the entire phalanx. The parents of the patient wished, however, to preserve as much of the finger as was possible because the boy was studying the piano, and eventually it turned out that the course adopted was the best. 14 months after the operation Dr. Pfihl received a visit from the youth accompanied by his father who presented the surgeon with a skiagram which he had taken. The finger, although slightly clubbed, had regained its stability and mobility, and a new nail had grown which was quite undeformed. The phalanx from which the ossicle had been removed contained a new bone which was in every respect equal to its predecessor, except that it was shorter and slightly thicker. For all practical purposes the finger was perfectly serviceable, the youth being able to continue his pianoforte playing without any loss of power. Dr. Pfihl says that the only other case of regenerated bone which he has been able to trace is that of a woman mentioned by Ollier, the ungual phalanx of whose thumb had become reconstituted after the loss of its bone through whitlow. It was Ollier, he further remarks, who was the first surgeon to enunciate the aphorism that "the periosteum reproduces the bone."[1]

THE BRITISH MEDICAL BENEVOLENT FUND.

WE have already announced that a meeting in support of the British Medical Benevolent Fund will be held on Tuesday, Feb. 9th, at 5 P.M., in the library of the Royal College of Physicians of London, with Sir John Tweedy, President of the Fund, in the chair. Addresses will be delivered by the Bishop of Oxford, the Lord Mayor of London, the President of the Royal College of Physicians of London, and others in support of the objects of the Fund. We understand that this meeting is not convened to make a direct financial appeal to the medical profession but rather to awaken a more active interest in the excellent work which is done by the Fund, with a view to gaining extended support for it in the future. The occasion appears to us a timely one to refresh our readers' memories of the salient points in the constitution of this most important charity. The Fund exists to make grants of money to distressed members of the medical profession, their widows or orphans, and to provide annuities for such persons after they have reached the age of 60 years. These annuities, which are of £20, and in some cases £26, are paid out of the income derived from invested capital. The number of annuitants is now 124, and the amount distributed last year in this manner was £2469. The annual subscriptions and donations constitute the only fund available for special grants, and their amount determines the extent of relief which can be given each year in this form. The grants vary from £5 to £20, according to the necessities of the case. The amount distributed in this manner last year was £1877, but this sum, unfortunately, fell far short of the requirements, and many deserving cases had either to be passed over or inadequately relieved. The applications for relief are carefully investigated by the committee at its monthly meetings. No canvassing is necessary, and forms of application can be obtained by anyone from the honorary secretary. The applicants often prove to be utterly destitute, so that the money obtained from the Fund is all that stands between them and parish relief. All the Fund's investments are placed in trust securities, and it is satisfactory to note that the working expenses only just exceed 5 per cent., a result which is largely due to the interest and loyalty of the executive officers. Scarcely a week passes but the majority of medical men, in common with all others of the professional classes, receive an

[1] Ollier: Traité des Résections, tome ii., p. 524.

earnest appeal on behalf of some charity or other, but the Fund for which we are pleading has a claim upon the generosity of the medical profession which is quite distinct. We do not base this appeal upon the exceptional uncertainties of a medical practitioner's life and income, for the Fund exists as a benevolent institution and not as a scheme for insurance. The good-fellowship and solidarity of our profession have often been called in doubt and not only by those outside its ranks. The British Medical Benevolent Fund affords a shining opportunity to give the answer to such reflections. Medical men who are ever ready to give their services to the public can surely spare a trifle from their earnings to provide for the least fortunate of their brethren and those dependent on them for the bare means of life. We appeal to our readers to give the projected meeting their full support, and we would remind them that the honorary treasurer of the Fund is Dr. Samuel West, 15, Wimpole-street, W., and the honorary secretary Mr. W. E. Sargant, M.R.C.S. Eng., St. Bartholomew's Hospital, E.C

PURE MILK FOR HOSPITAL USE.

WE feel inclined to apologise to our readers for once more recurring to the well-worn subject of the need for a pure milk-supply, but here, as in other cases, it is too true that "knowledge comes but wisdom lingers," and though sanitary science may make important discoveries the practical measures needed to carry into action the conclusions reached too often lag behind. If the Government, by whom alone satisfactory laws for universal application can be laid down and enforced, is too busy to deal with matters affecting so small a matter as the public health private bodies may well take such action as is possible to them, and the public naturally look to the hospitals, as representing medical science, to take the lead in sanitary progress. Hence, the report of the committee appointed by the Liverpool Medical Institution to advise as to common action by the hospitals of the town in the matter of milk-supply is of considerable interest, suggesting as it does a definite scheme of a practical nature. The committee recommends for adoption a form of contract to be signed by the purveyors of milk to the hospitals, by which stringent specifications are laid down as to the sanitary conditions of cowsheds, the dress and cleanliness of the milkers, and examination of the cows for tuberculous or other disease. The application of the tuberculin test is required before the certifying veterinary surgeon gives a clean bill of health to any animal. Very similar rules have been suggested for adoption in the London hospitals by the Central Hospital Council, but in these the tuberculin test is not required and apparently no bacteriological examination of the milk supplied is advised. We can only hope that all hospitals which are large consumers and thus able to dictate their own terms will soon see the necessity for adopting similar rules for insuring the purity of this most important article of diet.

DIPHTHERITIC PARALYSIS.

IN the January number of the *Practitioner* Dr. J. D. Rolleston records the results of his observation of 335 cases of diphtheritic paralysis seen in 1500 consecutive cases of diphtheria. Of these 335 cases 135 were severe and 58 were fatal. He finds that a direct relation exists between the severity of the original attack and the incidence and severity of paralysis. He never observed paralysis as a complication of a relapse of diphtheria—an interesting illustration of the comparatively benign character of relapses in that disease. In opposition to the statement of Landouzy, Dr. Rolleston finds that paralysis is much more common in children than in adults, and he maintains that severe paralysis is rare in adults. Affection of the tendon jerks is also more frequent in children. In regard to the relation of the occurrence of paralysis to the administration of antitoxin, it was found that of those injected on the first day of the disease only comparatively few suffered from paralysis, while during the four subsequent days the number of cases of paralysis and their severity are both increased, but after the fifth day the number of cases of paralysis falls. A condition of hemiplegia occurring in diphtheria should be differentiated from ordinary diphtheritic paralysis, since it is apparently due to a cerebral vascular lesion—viz., embolism secondary to an endocarditis of the apex. Only one such case occurred in the present series and Dr. Rolleston has only been able to collect 69 from the literature. It is of interest to note that the oldest patient in whom this occurred was 15 years of age. In regard to the date of onset of paralytic symptoms, they rarely develop before the third week except in severe diphtheria, in which "precocious" palatal and cardiac palsies may occur during the first fortnight. Paralysis of the palate with nasal twang of voice is generally the first symptom. The usual time for the development of paralysis of accommodation is the fourth or fifth week and strabismus usually occurs a little later. Disturbance of sensation is a late phenomenon and the superficial reflexes are only affected late and in cases of generalised paralysis. The prognosis is better the older the patient, and the cardiac, pharyngeal, and diaphragmatic forms are the most serious. Complete recovery is the rule except in cases of hemiplegia. Dr. Rolleston finds that the onset of cardiac paralysis before the third week is of very unfavourable significance. Unexpected death during convalescence he has not seen, which he attributes to the special precautions taken with patients showing dilatation of the heart or marked irregularity in force or rhythm. He urges the importance of rest in bed, recumbent for periods varying from three weeks in mild cases to seven or eight weeks in severe attacks of diphtheria, as a prophylactic measure. He further recommends the use of adrenalin, of which he gives ten minims two hourly during the first fortnight, avoiding the use of brandy or strychnine. This proceeding, advocated by Dr. Rolleston four years ago, has been tried by other observers who express themselves favourably of its effects.

CORRUPTIO OPTIMI PESSIMA.

THE perversity of mankind in search of money has turned things excellent in themselves to poor purposes in every civilisation, and a noteworthy instance of such abuse is afforded by some of the developments of the biograph. That ingenious machine has a wide sphere of utility as a pleasant means of education, and still more of legitimate recreation in its graphic presentment of passing events or of carefully arranged episodes provocative of honest laughter. In this latter class of living pictures there is certainly a tendency for the ludicrous to pass into the sensational, and here and there an accident has been reported which proves that the film representing, let us say, a gentleman chasing his runaway hat along crowded streets or country roads, over mountains and through rivers, and finally suffering apparent flattening beneath a furious motor-car or an express train is not obtained without real risk to the nimble model whose movements are recorded to catch the shillings of the laughter-loving multitude. When the biograph made its first appeal to the public in certain places of entertainment of a less reputable type scenes were presented nightly upon the screen trespassing as near the limits of sexual decency as casual police or county council supervision would sanction, but this type of "entertainment" is, we believe, rarely or never seen in London at the present time

But it seems that the managers of certain biographic shows have hit upon the idea of attracting passers-by by pandering to a love of sensation based upon the contemplation of the agony of human beings. This we consider a base use of the biograph. It is surely a disgrace to London whose citizens have come forward so nobly in response to their Lord Mayor's appeal on behalf of a sorely stricken people that a biographic show presenting the horrors of the Messina earthquake should be advertised in one of its busiest streets. If the *Daily News* be rightly informed a Parisian biograph has been reproducing the recent execution of the Béthune murderers. It is not necessary for us to qualify further the motives that inspire such a show nor the taste that supports it. Both give us serious pause as to the reality of any moral evolution in the human race since the days of the Roman circus.

BIER'S TREATMENT OF TUBERCULOSIS OF THE TESTICLE.

Bier's treatment of inflammation by the production of passive congestion is one of the most important advances of modern surgery; indeed, it has been described as the most important advance since the introduction of the antiseptic system. But it has been little practised in this country. In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of Dec. 6th, 1908, Dr. H. Rocher has reported a remarkable result obtained in tuberculosis of the testicle. A metal founder, aged 27 years, was seen in consultation on Jan. 22nd, 1908, for an enlargement of the right testicle. He had always enjoyed good health, but in 1890, while working, he struck his scrotum. Some time afterwards he noticed a small lump at the lower end of the right testicle which was painful after fatigue or when lightly touched. The lump persisted without enlarging until the end of December, 1907, when it began to increase and another lump developed at the upper end of the testicle. The latter became larger than the former and attained the size of a cherry. The patient began to suffer from pains in the back and lower abdomen and the least fatigue caused the testicle to swell. It became so painful that the patient could scarcely touch it. On examination a little fluid was found in the right tunica vaginalis. The epididymis was large and bossy; in the head was a nodule of the size of a cherry and in the tail a nodule of the size of a cherry-stone. The epididymis was adherent to the testicle and tender. The right seminal vesicle appeared to be larger than the left and was distinctly tender. The left testicle was normal and there were no signs of tuberculosis in any other part. Bier's treatment was adopted. As applied to the testicle it consists in drawing down the affected organ and elevating the sound one and passing an elastic band three centimetres broad and from 50 to 60 centimetres long round the base of the scrotum. The ends of the band may be fixed with an artery forceps but in the case of a patient at rest Dr. Rocher prefers simply to pass the end underneath the turns of the band. As a rule, even in gonorrhœal orchitis, the pressure is not painful. The pressure must not be maintained for more than 12 hours daily. In the case described the patient went every day to Dr. Rocher to have the band applied. For the first eight days the band was applied for two hours, for the next 12 days for three hours. On Feb. 3rd diminution of the tumefied epididymis was observed. From the 11th to the 20th the band was applied for four hours and from the 20th to the 25th for five hours. The pains rapidly diminished until on the 20th they had disappeared. Towards the end of this period the patient noticed an enlargement of the tail of the left epididymis which became tender. As this was thought to be a new manifestation of tuberculosis passive congestion of both testicles was induced. The patient was able without difficulty to continue his work which on some days was arduous, causing him to stand for many hours. A suspensory bandage was also worn and continence was practised and cacodylate of sodium was administered. From Feb. 26th to March 3rd the band was not worn. From March 3rd to April 11th it was worn for five hours daily. The epididymis which, as stated above, was at first fused to the testicle separated and the two nodules progressively diminished. From April 11th to 22nd another interval during which the band was not applied was ordered. From the latter date until June 1st the band was applied for the same period as before. On June 15th recovery was complete; the right testicle was a little smaller than the left, smooth, and regular. The ends of the epididymis were slightly thickened, the result of cicatrisation. There was no fluid in the tunica vaginalis. Nothing abormal could be found in the left epididymis. In August the patient had gained three kilogrammes in weight since the beginning of the treatment and careful comparison of the right with the left epididymis was necessary to ascertain that there had ever been any lesion. The patient could do hard work without fatigue. In November his wife was found to be three and a half months pregnant—a result which he attributed to the success of the treatment.

OLD AGE PENSIONS IN THE UNITED KINGDOM.

THE official statistics relating to the number of pensions actually granted within the several parts of the United Kingdom up to Dec. 31st last are interesting from different points of view and call for careful examination. It appears that the total number of pensions actually granted within the United Kingdom on or before that date was 596,038 and equal to 46·6 per cent. of the estimated total number of persons aged upwards of 70 years, based upon the ages of the enumerated population as returned at the last census in 1901. Of these 596,038 pensions 360,904 were granted in England and Wales, 64,769 in Scotland, and 170,365 in Ireland. The proportion of persons aged upwards of 70 years in the total population enumerated in 1901 differed very widely in the several divisions of the United Kingdom; in England and Wales the proportion did not exceed 27·3 per 1000 and in Scotland was 29·0, whereas in Ireland it was equal to 42·0 per 1000. There are no sufficient grounds for doubting the generally approximate accuracy of the enumerated ages of the population of the United Kingdom in 1901, although the fact that 497 reputed centenarians were enumerated in Ireland, against 146 in England and Wales, suggests the conclusion that the ages of old persons in Ireland were probably not understated. Accepting the approximate proportional accuracy of the census figures it may be calculated that in the middle of last year the number of living persons aged upwards of 70 years was 955,028 in England and Wales, 139,983 in Scotland, and 183,288 in Ireland, the aggregate number in the whole of the United Kingdom thus being 1,278,299. It appears from the official statistics, as stated above, that in the United Kingdom the number of pensions granted at the end of last year was equal to 46·6 per cent. of the estimated total number of persons aged upwards of 70 years. The proportion of approved pensioners to the estimated total numbers of septuagenarians differed, however, in a startling manner in the several divisions of the United Kingdom; it did not exceed 37·8 per cent. in England and Wales and was 46·2 per cent. in Scotland; whereas no less than 92·9 per cent. of the total estimated number of persons aged upwards of 70 years in Ireland had been granted pensions on or before Dec. 31st last. This

startling excess in the proportion of pensioned septuagenarians in Ireland seems to call for scrutiny.

THE ROYAL BRITISH RADIUM INSTITUTE.

WE learn with pleasure that the Royal British Radium Institute has been established, largely owing to the munificence of Sir Ernest Cassel, and that a Royal Charter will be immediately granted. We publish below a *résumé* of Sir Frederick Treves's interesting address on the therapeutic possibilities and probabilities of the use of radium in disease, especially in cancer, in which it is shown beyond a doubt that research work in the treatment of cancer must follow up closely all available evidence as to the efficacy of radium. The new institute has not been founded solely to inquire into the value of radium surgically, but the investigations carried on there will form a valuable adjunct to the work of the Imperial Cancer Research Laboratory. The new institute will have the eminent services on its council of Sir William Ramsay, Sir J. J. Thomson, Sir Frederick Treves, the Honourable R. J. Strutt, and Mr. Henry Morris, treasurer of the Imperial Cancer Research Fund and President of the Royal College of Surgeons of England.

WE regret to announce the death of Mr. George Eastes, M.B. Lond., F.R.C.S. Eng., which took place suddenly at his residence, 35, Gloucester-terrace, Hyde Park, on Jan. 23rd. Mr. Eastes was 67 years of age and was a distinguished general practitioner and well known in the London medical world, also as a medical journalist. We hope to publish some account of his career in a future issue.

His Majesty the King has been pleased to grant permission to Dr. George Ogilvie to accept and to wear the Insignia of Knight of the Royal Order of Isabel la Catolica, conferred upon him by the King of Spain.

A TELEGRAM from the Acting Governor of Mauritius, received at the Colonial Office on Jan. 23rd, states that for week ending Jan. 21st there were 4 cases of plague and 3 deaths from the disease.

RADIUM IN SURGERY.

Sir Frederick Treves delivered a lecture at the London Hospital on Jan. 26th on Radium in Surgery. He commenced by saying that it appeared to him that there was possibly a great future for radium in the domain of surgical therapeutics, and he then proceeded to warn his audience that the greatest caution must be exercised in speaking of the potentiality of a new remedy for there was great temptation to regard any new method with too much favour. He did not propose to preach any new doctrine, but merely wished to place before them the present position of radium in surgery and to ask them whether they considered they were justified in supposing that the utility of radium was likely to be very great.

He first spoke of the maladies that radium could relieve without any doubt and prefaced his remarks with the statement that he would mention only cases he had himself seen and personally examined. It might be said that radium could cure every form of nævus, using the word "nævus" in its widest sense. It could cure "port-wine stains"; it could rid a patient of pigmented and hairy moles. He then described the case of an infant with a nævus of the size of a gooseberry on the top of the head that was entirely cured by a comparatively short application of radium. In another case the patient was a girl with an angioma of the eyelid of the size of a plum which was perfectly cured with radium. A striking and theatrical case was that of a young woman with an angioma affecting practically the whole of one side of the face. She had been subjected to innumerable operations with very imperfect success but under the influence of radium she was cured. In the case of a patient aged 12 years with a fibrous angioma situated in the substance of one arm in which the skin was not affected, treatment with radium caused the lump, which was of the size of a hen's egg, to be entirely dispersed in four weeks. He thought it was safe to say of radium that there was an evident relation between the amount of radium used and the amount of good it did. The itching of chronic eczema was permanently cured by treating it with radium applied on varnished silk. The itching disappeared immediately and did not return.

Sir Frederick Treves then described in considerable detail the curious way in which radium caused keloid to vanish. Rodent ulcers which had resisted treatment by Finsen light, x rays, and cataphoresis were cured by radium. In the case of a rodent ulcer of a number of years' duration which had ulcerated and had been ineffectually treated with the usual methods he had just mentioned, a cure was effected by two sittings with radium lasting one hour each, the skin after the treatment becoming soft and pliable. It had been said that radium only acted through the x rays which were part of its radiation, but in this case the rodent ulcer had refused to heal after persistent treatment by x rays; in other words, radium could effect a cure where x rays could not do so. Epithelioma of the lip and of the tongue were cured by radium but Sir Frederick Treves added that his statement applied to the early stages of these affections. In the case of an epithelioma that was ulcerating and which so far as he knew would have yielded to no other treatment than operation, the use of radium effected a cure to the satisfaction of those responsible for the case. It could be said that epithelioma of such a degree to which the term extensive might be applied had been treated with success by radium and the same remark applied to epithelioma inside the mouth and on the hard palate. An epithelioma of the face that had perforated into the nasal passage was cured, after certainly a good many sittings, by radium and an epithelioma that had destroyed the ala nasi was also cured. "Are these results permanent?" Sir Frederick Treves asked, replying, "Well, they apparently are. Of course no great deal of time has elapsed but I saw one case in which there had been a large patch of epithelioma on the face which had remained sound for two years after treatment by radium."

Continuing, Sir Frederick Treves said that he considered there were sufficient facts on which to base the belief that there was certainly utility in radium. Turning to the question of the action of radium, he said that it gave off three kinds of rays called respectively alpha, beta, and gamma. The alpha rays had but little penetrating power and had a slow velocity, the beta rays had great penetrating power and were possessed of a very high velocity, and the gamma rays had enormous penetrating power and their velocity might be compared to that of light. The alpha rays could exist alone but the beta and the gamma rays were inseparable. The alpha rays were supposed to give off heat rays and to cause burning. The secret of the application of radium lay in the realisation of the fact that in using it surgically surface was wanted. A little radium spread over a wide surface was much more powerful than a piece of it in a tube. Radium in surgery was ordered by means of a prescription stating the proportions of the various rays to be used, the alpha rays having to be cut off by means of aluminium of a certain thickness. The question of distance had to be decided and the length of time of exposure depending on what results the surgeon wished to secure. Sir Frederick Treves then described with much minuteness how, if the treatment was applied on a Monday no effect would be noticed probably until Friday following when, perhaps, for the first time there would be an inflammatory reaction; then a crust formed which under no conditions must be disturbed, and the part would become normal in a month or so, after which it was not necessary for the patient to be seen again.

The last part of the lecture was taken up with the consideration of the future of radium in surgery. This, in the opinion of Sir Frederick Treves, lay in the fact that radium gave off an emanation causing substances to become radio-active. He discussed the question of inhaling these emanations in the treatment of diseases of the lungs. He had been told

that an eminent *savant* in London had injected a solution of the deposit that came from these emanations into a mouse suffering from an artificially produced cancer, with the result that the growth vanished. Sir Frederick Treves had himself seen a one-time patient of his who had been treated with subcutaneous injection of solution of the emanations. They were injected into the abdominal wall, and what impressed Sir Frederick Treves was the fact that at the site of each puncture there was a scar with pigmentation of the skin the like of which he had never seen in the whole course of his surgical experience. The lines which the future investigation of the therapeutic action of radium must follow would deal with the action of the rays and the emanations on bacteria and bacterial products. The selective action of radium on the tissues must be investigated and the question of the effect of introducing radium into the substance of a growth in tubes permeable to its rays would have to be settled by careful observation.

THE LAW RELATING TO INEBRIATES REFORMATORIES AND RETREATS.[1]

THE Departmental Committee appointed to inquire into the operation of the law relating to inebriates and to their detention in reformatories and retreats has issued a report of great interest to the medical profession and one which we sincerely hope will receive the early attention of the Government. The original reference was extended, it may be remembered, so as to authorise the committee to investigate the value of existing methods for the treatment of inebriety by the use of drugs. Although the members of the committee were impressed with the inherent improbability that any treatment by drugs could be enforced by Act of Parliament, they communicated with the advocates of the several drug treatments and carefully considered the statements they received in reply. They eventually decided that to embark upon a full inquiry into the efficacy and comparative merits of treatment for inebriety by the use of drugs of secret composition, and therefore of obscure action, would entail a great expenditure of time and money which could only be justified by a strong expression of public opinion as to the necessity of such an inquiry. No such feeling exists, so that it was felt that no good purpose could be served by making an extended investigation, which would create an undesirable precedent for the further expenditure of public time, while the precedent of asking the State for money for the purpose of examining into secret remedies for the treatment of disease might be used in an inconvenient manner for the demand of investigation by the State into the methods of treating various other ailments, perhaps by persons with no just claims for consideration.

The medical members of the committee have contributed a valuable and philosophical exposition of the nature of inebriety. The views of two extreme and irreconcilable schools—(1) those who regard drunkenness as a pure vice to be dealt with by punishment alone; and (2) those who consider it a disease allied to insanity—are referred to with equal respect; various generally accepted propositions as to the position of drunkards as citizens and as to their classification as pathological cases are considered; and the conclusion is reached that it is rather a question of nomenclature whether the presence of an inborn constitutional peculiarity, some inherited alteration of the ratio of self-control to desire for drink, should or should not be considered from the scientific point of view a disease. Setting aside the many vexed questions touched on by the use of the word heredity there is no question of the existence of a class who are without the moral force to resist the temptations offered by alcohol and drugs. While the members of the committee hesitate to express a definite opinion, they consider that there are cogent reasons why the term "disease" should not be used to characterise the inebriate habit. On the other hand, by their recommendations as to the treatment of habitual drunkards they definitely record their opinion that the condition is not one which should be dealt with by punishments, at any rate in most cases or as a routine, but it is the very essence of the report that compulsory measures should be used to protect alike the inebriate from himself and the public from the inebriate.

In dealing with amendments to the Habitual Drunkards Act, 1879, an Act which legislates for non-criminal inebriates and their voluntary admission into retreats, the committee advocates many alterations. The most important suggestions are: (1) that the inebriate should be able to take a pledge in the presence of a magistrate to abstain for one year from intoxicants; and (2) that he should be permitted to appoint a guardian over himself, one who would enjoy considerable powers, and who must satisfy a magistrate that he is willing to undertake the trust. A breach of the pledge or the inability of the guardian to exercise sufficient control would constitute grounds for compulsory measures under certain safeguards.

It must not be ignored that there are at the present moment institutions where persons can and do place themselves voluntarily under medical treatment, recognising their own incapacity for unaided abstention from excess of alcohol or drugs. The greatest good has often resulted from these homes; they are in no sense prisons, they are under the direction of selected medical men, who are in some instances guided by a responsible medical committee, and almost unlimited liberty is allowed to the inmates, so that whilst undergoing the treatment they are still allowed to transact business. There may be some who now avail themselves of the privacy of these homes who would hesitate to adopt the voluntary measures proposed by the committee. Let these houses be registered and if necessary inspected, when it seems only right, as suggested by this report, that if a person recognises that he is suffering from a habit which is gradually pulling him down to destruction he should have the opportunity of obtaining relief in a way which is free from public criticism, if he is able and willing to avail himself of it.

The most important recommendation of the report, however, deals with compulsory measures to control the inebriate. It is proposed that powers should be given to any friend or relative of the inebriate, apart from his consent, to petition for a compulsory order of guardianship or for committal of the inebriate to a retreat. Realising the objections that exist to any interference with the liberty of the subject, objections that were advanced against the detention of lunatics and which experience has shown to be without foundation, it is wisely suggested that guardianship should always be resorted to when practicable and likely to meet the needs of the case. It will be possible, if the recommendations of the committee are accepted, for a "relative, friend, or voluntary guardian of the inebriate" to petition the judicial authority for a compulsory order of guardianship or committal to a retreat. There has all along been the difficulty of finding the one to bell the cat and it is to be feared that this will still be the difficulty in carrying out the recommendations of the report. Probably the medical attendant will be the one upon whom the responsibility of reporting will mainly fall just as it is in the case of lunacy certificates, and it might perhaps have been as well if a form of certificate had been drawn up by the Departmental Committee for anyone to use in making the application to the judicial authority. The difficulty of finding a prosecutor who can also prove the grounds on which the inebriate is to be restrained should not be a great impediment in the carrying out of the Act. The law will be there, provided that the present report is successful in its passage as a Bill through Parliament, and if people who are aggrieved fail to use the powers obtained for them it may become a question whether measures may not have to be introduced which will extract perforce the required information from those who are in possession of the knowledge. There may arise the question as to whether the medical man who is called in to treat an inebriate is justified in turning informer against one who is being treated on confidential terms, and we know that some medical men have strong views on this point and would urge that to petition a judicial authority does in the circumstances constitute a breach of professional secrecy, just as in a similar way they would refuse to sign a lunacy certificate.

The very difficult question of the way to deal with poor inebriates is met with considerable courage. It is recommended that the State itself (or possibly in combination with

[1] Report of the Departmental Committee on the Inebriates Acts. London: Jas. Truscott and Son, Limited. 1908. Price 4½*d*.

local authorities) should maintain in retreats inebriates who cannot be sufficiently provided for at their own cost or at that of their relatives or friends. Of course, in recommending State support of retreats on a much wider basis the members of the committee have had to take the question of cost into serious account, but they refuse to be frightened at the expense to be incurred. In dealing with establishments which involve at least a penal and compulsory detention if only for a short time, there is no sense of the fitness of things displayed in the absurd extravagance that has been indulged in by some public bodies—and the remarks on this subject might be applied to some of the rate-charged mansions which are erected for pauper lunatics. If the money is spent properly the sum to provide reformatories for poor inebriates need not be terrifying. The expense to the State is not entirely a new charge upon the public funds, while the damage caused to person and property by the uncontrolled inebriate is very large and would be avoided by following the suggestions of the committee.

With regard to the Inebriates Act, 1898, which applies mainly to criminal inebriates and their reception into reformatories, the reasons why this Act has been a decided failure are given in full. The action of magistrates and the wording and provisions of the Act are shown to be equally responsible for the fact that the law is a dead-letter. During the nine years that the Act has been in force 1,751,830 persons have been convicted and sentenced for drunken behaviour. Of this number fewer than 3000 have been committed to reformatories. The lack of accommodation in reformatories, and the long sentence of three years' immurement, to which the Act does not condemn the inebriate—although the interpretation placed upon it by the courts would seem to have this effect—have alike played a part in the failure of the Act. Among other alterations in the Act, therefore, it is recommended that magistrates should be given additional powers in dealing with inebriates and that courts of summary jurisdiction, courts of assize, and quarter sessions should be empowered to give a convicted prisoner, who is an inebriate, a probationary discharge on recognisances, among the conditions being abstinence from alcohol and periodic reports to an officer who shall not be a member of the police force. Periods of committal to reformatories should, it is suggested, be on a sliding scale commencing at six months with a subsequent probationary period, a distinctly useful idea. Recidivists will receive gradually increasing terms up to three years. In the case of the hopelessly irreformable this scheme will entail a succession of terms of reformatory life with short periods of probationary freedom.

Parliament has hitherto rejected the advice of former committees in the matter of compulsory detention of non-criminal inebriates; it remains to be seen whether the conclusions very deliberately arrived at by the authors of this report—the result of much labour, large experience of the subject, and the sifting of evidence collected from many persons with wide knowledge of the subjects under consideration—will result in much required legislative changes. It has been for many years obvious to a large majority of the members of the medical profession that there is urgent need for powers to deal with the numerous class of inebriates, persons who are in a condition of chronic alcoholic or drug poisoning or who are periodically in a state which unfits them for decent society, who at present, so long as they avoid committing criminal acts, are at liberty to degrade and to ruin themselves and their families and to become a nuisance to the community—persons, in short, for whom the best that can be hoped, in the existing circumstances, is that they will speedily drink or drug themselves to death. Such persons ought to be compulsorily under control, and if measures were adopted during the earlier stages of inebriety there is no doubt that a large percentage would be reformed, while some would after all be found to be good citizens and useful members of society. "The alternative," to quote an aphorism from the report, "to interfering with the liberty of the inebriate is permitting the inebriate to interfere with the liberty of the people," and we congratulate the member of the committee from whose lips this epigrammatic pearl dropped and the humour of the committee in adopting it as an argument in favour of their recommendations.

The report is a well-considered document, unconventional in form and clear in language. It is entitled to confidence on the grounds of the authority and experience of the members composing the committee, while it should be satisfactory in its conclusions to the medical profession who have for a long time urged the necessity of more stringent measures for dealing with inebriates than are afforded by the previous Acts of 1879 and 1898. If legislation follows on the recommendations the public will have an opportunity, if it will make use of it, of ridding itself of an ever-present canker in a manner for which it has long prayed. It remains to be seen how far the moral courage of the public will go if the desired powers are obtained. We doubt if the "voluntary measures" will be utilised extensively, partly because it is difficult to see how the "guardian" if appointed can do much in the way of relieving the condition of his *protégé*.

AN INTERESTING EXAMPLE OF STEATOPYGIA.

THE illustration below represents a Bushwoman, of the race of "Bushmen," who are rapidly dying out in South Africa. The upper portion of her body is quite normal. At the loins it terminates in a fold, as can be seen, and from the buttocks down to the knees there is a superabundance of fatty tissue, whilst hanging over the pubes is a fold of skin which at a distance looks like the male generative organs.

Although such an exaggerated deposit of fat is seldom seen, yet it is the general rule for these "Bushmen" to deposit a considerable amount of fat in the region of the buttocks and thighs. This is characteristic of the Bushmen, and to a lesser extent with the Hottentots, who are in face, figure, and habits near akin to the Bushmen.

These people lead a purely nomadic life, relying for sustenance upon the products of the chase and the roots, berries, and herbs of the country; consequently they are subject to periods of fasting more or less prolonged, for

South Africa is subject to periods of great drought, when vegetation is scarce and wild animals migrate or die off, therefore it is reasonable to suppose that nature comes to the rescue and in times of plenty stores up nutriment in a portion of the Bushmen's anatomy to be subsequently drawn upon whenever necessary. This tendency has possibly been developing or evolving for many generations and is now more or less a characteristic of the race, recalling the fact that in the arid districts of Northern Africa the camel has a hump of fatty matter which is nature's way of laying up a reserve of food.

THE IRISH MEDICAL SCHOOLS' AND GRADUATES' AND THE SCOTTISH MEDICAL DIPLOMATES' ASSOCIATIONS.

A MEETING of the members of the Irish Medical Schools' and Graduates' and the Scottish Medical Diplomates' Associations was held at the Hotel Cecil, Strand, London, on Jan. 21st.

Sir CHARLES B. BALL was voted to the chair on the proposition of Dr. J. J. MACAN, seconded by Dr. ARTHUR J. HARRIES.

Mr. T. H. CRAMPTON (honorary secretary) announced that he had received a large number of letters from leaders in the profession in Scotland and Ireland regretting their inability to be present.

Dr. H. MACNAUGHTON JONES moved:—

That the present exclusion of all persons who do not hold certain qualifications from candidature for honorary positions on the staff of a public hospital is contrary to the public weal, and is a restriction which is not to the interest of the institution itself, excluding as it does all other candidates who may have exceptional claims to fill such positions.

He said: "The fact that we have good grounds for our attitude in this matter and for our meeting to-day is proved by my stating that the principle that we are here to advocate has been accepted and approved of in the three divisions of the United Kingdom on three occasions—at the annual meetings of the British Medical Association in Dublin (1887), Glasgow (1881), and Bournemouth (1890). It has received the approval of a special committee of the British Medical Association appointed to consider the question, and of the Select Committee of the House of Lords that had under its consideration the organisation of the metropolitan hospitals.

In a leading article on the subject (August 13th, 1887) THE LANCET said:—

Hospital appointments we presume to involve exceptional duties, and to call for higher tests. The first thing to be done in the matter is for the Scotch and Irish Bodies to show that their higher titles are only given on conditions as severe as those in England. If proof to this effect can be adduced, and it should easily be forthcoming, no English monopolies can be defended for a moment. It will still remain a question—a separate question—whether high professional appointments should not be given only to those with high professional attainments. But it will be no longer seemly, or even tolerable, to maintain privileges for those holding the diplomas of a certain nationality as against those who have passed examinations of equal severity elsewhere.

THE LANCET here, be it noted, rests the comparative claims of the candidates on the relative severity of the examination they have to pass. But no man in his senses will deny that the examination test is but one of the least of many proofs of a man's fitness to occupy a responsible post in a hospital. Pasteur, though he took a high place in his Bachelor of Science degree, was classed as 'mediocre' in chemistry. He lived to be ranked as one of the greatest chemists that the world has known. We do not inquire into the character of the examinations which the men who are landmarks in the progress of medicine had to pass. Possibly if we did we might find that some of them just 'scraped through.' The *British Medical Journal* of Feb. 4th, 1893, said:—

The efforts made to remove the invidious distinction which has come into existence in England has the warm support of the British Medical Association, which at three general meetings has condemned the monopoly by a large majority.

If we take a representative individual opinion we could not select a better one than that of the late Sir George Murray Humphry of Cambridge University. Writing after his experiences as examiner in Irish and English university boards he said:—

Such exclusion does no real benefit to the institutions and tends to foster ill feeling between the members of the profession and others in the three divisions of the Empire which it was one of the objects of the Medical Act to prevent. ..... Having been an examiner for many years of the College of Surgeons of England and in the University of Cambridge he could state with confidence that those who hold the degree of Bachelor of Surgery and Master of Surgery of Cambridge are quite as well qualified to hold appointments in hospitals as those who hold the diploma of Member or Fellow of the College. ..... Has Scotch or Irish surgery shown itself behind English?

Sir John Williams, speaking of this rule in 1894, said:—

Under present circumstances it was a source of injustice and annoyance and was contrary to public interests.

It was the late Dr. Edward Waters of Chester, Fellow of the Royal College of Physicians of London, an ex-president of the British Medical Association, who proposed the resolution at the Glasgow meeting with a view of obtaining the opinion of the General Medical Council on the question. I might here allude to the names of two presidents of the Irish Medical Schools and Graduates' Association who accepted office at the time when the association was actively engaged in endeavouring to obtain the rescinding of the restrictive rule—the late Sir George Paget, Regius professor of medicine in the University of Cambridge, and the late Sir Richard Quain, ex-President of the Royal College of Physicians of London; and it was about the same time that Sir James Paget accepted the honorary membership of the association in these words:—

The honour I shall always estimate very highly, for it associates me with a large number of those whom I admire as amongst the best members of our profession—the best both in knowledge and in personal character.

It must be in the outset understood that Irish and Scotch graduates or diplomates do not complain that they are not appointed to English hospitals; it is that they are excluded from candidature, though they hold the higher degrees and qualifications of their universities and colleges. There is a *noli me tangere* edict which declares practically that they are not to enter within the sacred circle of favoured candidates for certain hospitals. They say, 'We do not ask you to appoint us to any hospital, though we may prove that we are by work and experience pre-eminently entitled to your confidence, but do not prevent us from at least proving to the hospital governors our claims to consideration and our eligibility to hold office.' At present no Scotchman or Irishman, no matter how well qualified by experience or original research he may be, who does not happen to hold the favoured English qualifications, can apply for an appointment in these hospitals, and the slur is publicly thrown in their faces by advertisement in the lay press that [they are unfit to do so. The question naturally arises, Why is this? Let us look squarely at the two main reasons which are given by those who defend this practice. First, these institutions are not State institutions. They are not on a par with the public services—military or civil. They have been endowed by private munificence and are supported by private donations and subscriptions, and those intrusted with the control of their maintenance and administration are entitled to make any rules or regulations which they see fit for their efficient conduct and welfare. Secondly, the rules requiring certain qualifications to be held by candidates are justified by the inferior standard of knowledge required of, and the lower ethical restrictions placed on, the possessors of all other qualifications. How are we to meet these apparently fair arguments? In regard to the first it must be remembered that it never could have been the intention of the founders of these hospitals to limit their sphere of usefulness to the State, whether as a means of treating the sick poor or as affording opportunities for the study of disease and the discovery of new means of cure. When many of these were founded the conditions of medical education were widely different from what they are now. The centres from which instruction and knowledge were to be obtained were comparatively few and situated widely apart. In England London alone, in Scotland chiefly Edinburgh, in Ireland Dublin alone. It was natural that the authorities of the hospitals, animated as they are still by the views of their medical staffs, should impose restrictive regulations in regard to the qualifications of those seeking office; to secure such qualifications residence being compulsory in one of the great centres of medical education. These corporations had thus a monopoly in the supply of candidates; also, the hospitals were closely associated with the teaching staffs of the schools, as they were either identified with them or the contemporary examining boards of the corporate councils. The interests of the corporation, the school, and the hospital alike demanded a close unity of all three. The reputation of each in attractiveness of its diploma, the teaching, and the

ability of the staff touched the financial prosperity of all three. Gradually, however, new centres of learning came into existence, facility through new means of intercommunication and transport enabled students to take that licence which was most to their future interests and in accord with their circumstances at the time to obtain. Hospitals with teaching opportunities multiplied enormously. The State insisted on having its share in regulating the standard and character of the education required of those whom it took under its protection by registrable recognition; and it empowered a body to which it gave the name of General Medical Council to supervise not only the conduct of examinations so as to guarantee to it the fitness for practice of those who pass those qualifications, but also exercise a censorship in regard to morals and conduct. It gave the Council power to recognise such hospitals as it might consider had adequate facilities and equipment as teaching institutions. The State by Acts of Parliament interfered with the charters of the colleges by alteration and amendment, and in the instance of the Royal College of Surgeons in Ireland deprived it of the privilege of securing that appointments to certain hospitals in Ireland should be only held by those who possess its licence. Gradually through these Medical Acts we find the State taking a greater part in the schemes for the education of medical men, and also through its representatives on the General Medical Council making itself in a degree responsible for the efficiency of the institutions, whether schools or hospitals, on which that education depends; for every hospital recognised by the General Medical Council becomes part of its local school. Again, the State recognised the degrees of the Universities, both in medicine and in surgery, as giving an equal right with the diplomas of corporations to their holders to practise medicine and surgery, and the universities created two grades of graduates, Bachelors and Doctors of Medicine and Bachelors and Masters of Surgery. The latter or higher surgical title corresponds to that of a Fellow of a College. Such higher degrees in surgery were only to be obtained after a more prolonged course of study and exceptional tests of examination. Here I may remark that the holder of the purely honorary diploma of the Fellow of the Royal College of Physicians is not affected by this question, as this diploma is not generally required for the candidate for hospital appointments. No one, I think, will contend that the M.D. degrees of the universities are inferior qualifications to the Membership of the Colleges.

We thus find that the condition of affairs to-day, when a triple qualification is demanded of registered practitioners, and when there are two grades of graduates and diplomates, is widely different from that which existed when the diplomates of the different corporations appropriated certain hospital appointments and the authorities of the hospitals acquiesced. It seems on the face of it paradoxical that the higher degrees in medicine of any university should not confer the same privilege as an ordinary Membership diploma of a College of Physicians does, and that the higher degrees in surgery to be obtained only by conforming to exceptionally severe conditions are to be ignored by a hospital authority and to be looked upon as insufficient to entitle their possessors to hold a hospital appointment. Here, it may be urged, in regard to the Membership licences of the Colleges of Physicians, that these impose certain ethical restrictions not required of graduates of a university, and that this gives the College a greater controlling power over its diplomates. I might here interpose that I do not find that university graduates in medicine are any greater sinners, ethical or moral, even though they may not have always before their minds the restraining force of the letters M.R.C.P., than the Members of Colleges of Physicians. If the Membership of a College of Physicians be for reasons of supervision considered needful to entitle a man to become a candidate for a medical post in a hospital, and there is to be one standard for a physician and another for a surgeon, then let all the Colleges be brought to the same level of ethical perfection and let no invidious distinction be made. So far as the diplomates of the Irish Colleges of Physicians and Surgeons are concerned they claim that there is no corporate body in the world that imposes more stringent ethical regulations on its Members than they do.

There is in the minds of some a special halo round the head of the man who calls himself a pure physician. True, he represents a gradually narrowing and select body of men. Nowadays I find that a Fellow of the Royal College of Physicians can be a brilliant operating surgeon. He is a sort of medical hermaphrodite. He attacks with his physician's knife every organ in the female pelvis; he can operate on the skin and on the appendix. He finds his own special field of revenue invaded by the surgeon and I see no reason why he may not, should he elect to do so, with equal right resect a rib and explore a lung abscess cavity or remove a tubercular kidney as he now performs hysterectomy or does a radical cure of hernia in a woman—provided always it be a woman. I allude to this merely to show how artificial are some of our medical distinctions. A Fellow of the Royal College of Surgeons may have a partner and may sell a practice; a Member of the Royal College of Physicians may not.

The conditions which we complain of have the effect of blocking the way to all men save the diplomate of the favoured Colleges who aspire to rise in the ranks of the profession. It limits competition and deprives public institutions and those for whose benefit they exist of the services of men who might have otherwise exceptional claims on offices the duties of which they are undoubtedly fitted to discharge. It confines to a more narrow area the opportunity for research and new discovery, it is the imposition of a test which is absolutely out of touch with the modern spirit of 'fair play and no favour,' and the open door of opportunity to all competitors in the race of life. For these reasons we say it is contrary to the interests of the State and the public weal. That the authorities of such hospitals as insist upon retaining the rule are justified in doing so by reasons of the sources of their revenue we do not admit.

There is the open question how far the State can assume the supervising guardianship over the funds of institutions which undertake the responsibility of dealing with the lives of so many of its citizens. But it has interfered with other and still more assured vested interests before now, and threatens to do so in the future with others. It may well say that it must have a voice in the administration of hospitals, no matter through what sources their income be derived. At the present moment public money is utilised through the King's Fund; in many places through municipal grants; through properties and lands which have increased enormously in value in the process of time; and certain allowances in taxation are made. These are some of the additional considerations which destroy in great measure the first line of defence of the supporters of this rule. At any rate, no one can deny that the State has the right to-morrow to enact that such institutions shall be open to men who possess those qualifications that it considers adequate. And if the hospital authorities persist in upholding this rule then the demand for a State Licence which can entitle its holder to become a candidate for any public appointment in the State will take a practical shape, and the diplomas of the Corporation will become ornamental appendages which can be ignored or obtained at option. The demand for such a licence is daily increasing in the profession.

As to the second reason, that the character of the Scotch and Irish examinations is not on a par with the English ones, I should feel inclined to meet this with a simple denial, and say that the *onus probandi* rests on those who make the assertion. The Irish Colleges have met it on different occasions by an emphatic denial and have published exhaustive statements in which they have proved that the contrary is the fact. They have addressed the governors of English hospitals showing relatively the educational curricula of the English and Irish bodies, and the nature of their examinations. They have challenged, as has also the Irish Medical Schools' and Graduates' Association, the General Medical Council to inquire into the nature of the examinations for either the Membership of the College of Physicians or the Fellowship of the College of Surgeons of Ireland, and the Council replied with a *non possumus*. Some years ago Dr. Lindley Murray made an analysis of the number of rejections in the English College of Surgeons and the College of Surgeons of Edinburgh respectively and proved that there were a larger percentage of rejections in the Scotch College than in the English one. The same fact has been proved by the Irish College of Surgeons. There are those present who represent these Colleges and are far better qualified to deal with this point than I am. All I can say, speaking as a Fellow of both Colleges, is that there is a strong feeling on

the part of their Fellows practising in England that the grounds for such a statement should be impartially inquired into, so that all justification for it shall be removed."

Mr. A. J. HORNE (President of the Royal College of Physicians of Ireland) seconded the motion. He said that it was known 25 years ago that the hospitals in London were a very close borough indeed. But in 25 years hospitals like Guy's, St. Mary's, and King's had opened themselves to Irishmen and Scotchmen and therefore the associations he thought had something to be proud of. With regard to examinations he considered that the examinations in Ireland and Edinburgh would favourably compare with any examination held in London. Mr. Horne went on to ask why the hospitals in London had reserved to themselves the right of only electing men who held certain degrees. This system had been handed down from generation to generation. But he thought that in those conservative hospitals a greater liberality would soon exist. How was it to be brought about? They had already at three large meetings of the British Medical Association obtained the unanimous support of the profession. They had now more or less the lay body to attack. The governors of institutions were naturally conservative. How were they to approach the lay body? Chiefly, he maintained, through the instrumentality of the press. If they succeeded in enlisting in their services the medical and the lay press he was of opinion that the particular object which they had met together to secure would soon be an accomplished fact.

Mr. AUGUSTUS P. HILLS urged that the influence which they brought to bear in the matter should not be so much through the press as through the individual.

The CHAIRMAN said that the Scottish and Irish graduates were able to hold their own not only in entrance examinations but in their devotion to duty which insured their selection for the highest ranks of their profession. They found practically an even distribution in the highest posts of the Services. The Director-General of the Army was an Irish graduate, the Director-General of the Navy a Scottish graduate, and the Director-General of the Indian Army an English graduate. There was a sort of national spirit which tended to make them prefer a Scottish graduate for a Scottish appointment, and an Irish graduate for an Irish appointment, and an English graduate for an English appointment. Nobody quarrelled with that. But what they had a right to protest against was the statement that "we are not fit to become candidates." If that were put plainly and temperately before the public he thought it would end in what the association so much desired to be carried.

The motion was adopted unanimously.

Dr. D. WALSH moved:—

That the advertisements in the columns of the lay press that honorary offices in certain hospitals are open only to those holding the diplomas of some particular corporation gives to the public the impression that such restrictive regulation is justified by the exceptional character of such qualification, which is not in accordance with fact.

Mr. JOHN LENTAIGNE (President of the Royal College of Surgeons in Ireland) seconded the motion. He said without hesitation that the examination for the Fellowship of the Royal College of Surgeons in Ireland was as high and difficult an examination as that for a Fellowship of the Royal College of Surgeons of England. The Irish and Scotch graduates had not only proved themselves equal to but superior to these men who had special advantages which certain restrictions afforded. The public advertisements in the *Times* and other newspapers could not be interpreted in any other sense than as implying the inferiority of the bodies that were excluded. They cast a glamour on those other bodies, a glamour which was absolutely unjustified and undeserved. In Ireland they called this a boycott of Irishmen and Scotchmen in favour of certain corporations in London. These corporations ought not to require the support of such methods, they should have been only too glad to repudiate and to refuse the advantages which accrued to them in that way. He did not intend to say anything against the Royal College of Surgeons of England or the Royal College of Physicians of London. These bodies had shown great sympathy with his own College in the struggle which it was making at present against State-aided competition in Ireland and he was very grateful to them for it. But they should not allow this monopoly to continue without protest. In that monopoly he could see the origin of objectionable practices which he had thought peculiar to Ireland and which were almost always strongly repudiated by Englishmen in Ireland. In Ireland such practices were carried on only by the uneducated and ignorant. But in England it was by the educated, perhaps University qualified, hospital governors that that thing was done. Whether in England or in Ireland it was not the interests of the patients that were at the bottom of the trouble: a narrow and somewhat sordid spirit was the cause of it. They asked that the objectionable advertisements should cease and they had a right to do so. They had a right to stir up public opinion, to stir up Parliament if necessary, and he believed that Parliament would step in to stop the present state of things. If the hospitals did not set their own houses in order it would be done for them. And perhaps there might be more things done for them than they would like when the time for reform came. Personally he held strong views about hospitals. He believed that every hospital should be licensed annually and inspected at the same time, public or private, and kept up to a certain standard. He felt sure that if they kept on agitating this question the monopoly could not last. They must ask that the advertisements would cease in the name of justice, fair-play, and public decency.

Dr. MACAN said that the stigma cast upon the Irish and Scotch corporations by the advertisements in the lay press did not simply affect men who might or might not be candidates for hospital appointments, but when conveyed in the advertisements of the lay press affected every practitioner in England who might derive his qualification from one of the Irish or Scotch bodies.

The motion was carried unanimously.

Surgeon-General Sir THOMAS J. GALLWEY, A.M.S., moved:—

That these resolutions be forwarded to such persons as the Councils of the two Associations may determine.

He remarked that being an officer of the army he was rather outside the struggles of the profession. But he thought that the opposition came from the lay persons on the corporations of the hospitals. Therefore the more that the governing staff of the hospitals was represented by the medical profession the better.

Dr. L. S. MCMANUS (Direct Representative on the General Medical Council, England), in seconding the motion, said that he hoped that they would take the lay press into their confidence.

Dr. H. W. FITZGERALD POWELL and Dr. W. DOUGLAS took part in the discussion that followed, after which the motion was unanimously adopted.

In the evening a banquet was held in the Hotel Cecil, presided over by Surgeon-General Sir Charles Macdonagh Cuffe, A.M.S. (retired). The various toasts were enthusiastically received and the proceedings were enlivened by Scottish and Irish songs.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8209 births and 4964 deaths were registered during the week ending Jan. 23rd. The annual rate of mortality in these towns, which had been equal to 17·5 and 16·6 per 1000 in the two preceding weeks, further declined to 15·7 in the week under notice. During the first three weeks of the current quarter the annual death-rate in these towns averaged 16·6 per 1000, and in London the mean rate during the same period was equal to 16·7. The lowest recorded annual death-rates in these towns during last week were 6·8 in Leyton, 8·1 in Willesden, 8·2 in Hornsey, and 8·4 in Walthamstow, all Metropolitan suburban districts; the rates in the other towns ranged upwards, however, to 20·5 in Salford, 20·6 in Manchester, 20·9 in Rochdale, 21·5 in Stockton-on-Tees, 22·4 in Warrington, and 23·6 in Stockport. In London the recorded death-rate during the week did not exceed 15·3 per 1000. The 4964 deaths from all causes in the 76 towns last week showed a further decline of 273 from the numbers returned in the two preceding weeks, and included 447 which were referred to the principal epidemic diseases, against 450 and 491 in the two previous weeks; of these 447 deaths, 210 resulted from measles, 71 from diphtheria, 56 from whooping-cough, 46 from diarrhœa, 32 from scarlet fever, and 31 from "fever" (principally enteric),

but not one from small-pox. The deaths referred to these epidemic diseases in the week under notice were equal to an annual rate of 1·4 per 1000, against 1·4 and 1·6 in the two preceding weeks; in London the recorded rate from these diseases was equal to 1·5 per 1000. No death from any of these epidemic diseases was registered during last week in Cardiff, Walthamstow, Southampton, Hornsey, or in ten other smaller towns; the annual death-rate therefrom, however, ranged upwards in the other towns to 3·3 in Sunderland and in West Hartlepool, 3·2 in Kings Norton, and 7·9 in Warrington. The fatal cases of measles in the 76 towns, which had been 229 and 221 in the two preceding weeks, further declined to 210 in the week under notice, but caused annual death-rates equal to 1·7 in Huddersfield, 1·8 in Birmingham, 2·3 in Sunderland, 3·3 in West Hartlepool, and 4·3 in Warrington. The deaths from diphtheria, which had been 62 and 72 in the two previous weeks, were 71 last week, of which 26 occurred in London and its suburban districts, eight in Manchester and Salford, and three each in Liverpool, Warrington, Bradford, Leeds, and Hull. The 56 fatal cases of whooping-cough showed a further slight increase upon recent weekly numbers, and caused the highest annual death-rates—1·3 in Coventry, 1·4 in Bournemouth, 1·9 in Tynemouth, and 2·0 in Stockton-on-Tees. The 46 deaths attributed to diarrhœa were fewer than in any recent week. The 32 fatal cases of scarlet fever showed a decline of 18 from the number in the previous week, and included 11 in London, six in Liverpool, and two in Merthyr Tydfil, equal to an annual rate of 1·3 per 1000. Of the 31 deaths referred to "fever," three occurred in Nottingham, seven in Manchester and Salford, and two in Warrington. The number of scarlet fever patients under treatment in the Metropolitan Asylums and the London Fever Hospitals, which had been 3557, 3347, and 3261 on the three preceding Saturdays, had further declined to 3211 at the end of the week under notice; the new cases of this disease admitted to these hospitals during the week under notice were, however, 379, against 323 and 358 in the two preceding weeks. The registered deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 422 and 379 in the two preceding weeks, further declined to 317 in the week under notice, and were 87 below the corrected average number in the corresponding week of the five years 1904–08. The causes of 49, or 1·0 per cent., of the deaths registered in the 76 towns during the week were not certified, either by a registered medical practitioner or by a coroner. All the causes of deaths registered during the week under notice were again duly certified in Leeds, West Ham, Bradford, Salford, Leicester, and in 44 other smaller towns; the 49 uncertified causes of death in the 76 towns last week included eight in Liverpool, six in Birmingham, and four in Manchester.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 19·5 and 18·1 per 1000 in the two preceding weeks, rose again to 18·8 in the week ending Jan. 23rd. During the first three weeks of the current quarter the death-rate in these eight towns averaged 18·8 per 1000, and exceeded by 2·2 the mean rate during the same period in the 76 English towns. Among the eight Scotch towns the death-rate during the week under notice ranged from 11·7 and 14·0 in Perth and Leith to 20·7 in Aberdeen and 21·9 in Dundee. The 671 deaths from all causes registered in the eight towns last week showed an increase of 23 upon the number returned in the previous week, and included 57 which were referred to the principal epidemic diseases, against 70 and 73 in the two preceding weeks; of these 57 deaths, 35 resulted from whooping-cough, 12 from diphtheria, seven from diarrhœa, two from scarlet fever, and one from "fever," but not one either from measles or small-pox. These 57 deaths were equal to an annual rate of 1·6 per 1000, exceeding by 0·2 the mean rate during the week from the same diseases in the 76 largest English towns. The fatal cases of whooping-cough in the eight Scotch towns, which had steadily increased in the four preceding weeks from 22 to 39, declined again last week to 35, and included 23 in Glasgow, six in Aberdeen, three in Edinburgh, and two in Dundee. The 12 deaths from diphtheria showed an increase of five upon the number returned in the previous week; seven were recorded in Glasgow and two both in Aberdeen and Paisley. The seven deaths attributed to diarrhœa were fewer than in any week since last spring. A fatal case of scarlet fever was returned both in Glasgow and in Edinburgh. Only one death was referred to "fever" last week in the eight towns; this case occurred in Glasgow and was certified as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory organs in the eight towns, which had increased in the five preceding weeks from 101 to 151, declined to 118 in the week under notice, and were 60 below the number returned in these towns in the corresponding week of last year. The causes of 26, or 4·0 per cent., of the deaths registered during the week in the eight towns were not certified; in the 76 large English towns the proportion of uncertified causes of death last week did not exceed 1·0 per cent.

HEALTH OF DUBLIN.

The annual rate of mortality in Dublin, which had been equal to 23·6 and 23·7 per 1000 in the two preceding weeks, further rose to 25·3 in the week ending Jan. 23rd. During the first three weeks of the current quarter the death-rate in the city averaged 24·2 per 1000, whereas the mean rate during the same period did not exceed 16·7 in London and 15·6 in Edinburgh. The 193 deaths of Dublin residents during the week under notice showed an increase of 12 upon the number returned in the previous week, and included 13 which were referred to the principal epidemic diseases, against 16 and 15 in the two preceding weeks. These 13 deaths were equal to an annual rate of 1·7 per 1000; the rate from these epidemic diseases in the same week did not exceed 1·5 in London and 1·2 in Edinburgh. Of the 13 deaths from these epidemic diseases in Dublin last week nine resulted from measles, two from whooping-cough, and one each from diphtheria and diarrhœa, but not one either from scarlet fever, "fever," or small-pox. The fatal cases of measles, which had been nine and eight in the two preceding weeks, rose again to nine last week. The 193 deaths from all causes during the week included 43 of infants under one year of age and 54 of persons aged upwards of 60 years. Four inquest cases and five deaths from violence were registered during the week; and 70, or 36·3 per cent., of the deaths occurred in public institutions. The causes of six, or 3·1 per cent., of the deaths registered in Dublin last week were not certified; the proportion of uncertified causes of death in London last week did not exceed 0·1 per cent., while in Edinburgh it was equal to 4·5 per cent.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

IN accordance with the provisions of Her late Majesty's Order in Council of April 1st, 1881, Surgeon William James Stitt has been allowed to withdraw from His Majesty's Naval Service with a gratuity (dated Jan. 21st, 1909).

The following appointments are notified:—Fleet-Surgeon E. H. Meaden to the *Tenedos* and Staff-Surgeon A. J. Laurie to the *Warrior*.

ARMY MEDICAL SERVICE.

Surgeon-General William S. Pratt, C.B., is placed on retired pay (dated Jan. 21st, 1909). Colonel Hayward R. Whitehead to be Surgeon-General, vice W. S. Pratt, C.B., retired (dated Jan. 21st, 1909). Lieutenant-Colonel Stapylton C. B. Robinson, from the Royal Army Medical Corps, to be Colonel, vice H. R. Whitehead (dated Jan. 21st, 1909). Colonel William J. R. Rainsford, C.I.E., is placed on retired pay (dated Jan. 26th, 1909). Lieutenant-Colonel Richard W. Ford, D.S.O., from the Royal Army Medical Corps, to be Colonel, vice W. J. R. Rainsford, C.I.E. (dated Jan. 26th, 1909). Lieutenant-Colonel Edwin Eckersley, R.A.M.C., to be a Deputy Assistant Director-General at Headquarters, vice Lieutenant-Colonel A. E. Tate, R.A.M.C. (dated Jan. 20th, 1909).

ROYAL ARMY MEDICAL CORPS.

Captain Stevenson Lyle Cummins, from the Seconded List, to be Captain (dated Jan. 7th, 1909). Captain George S.

Nickerson, retires, receiving a gratuity (dated Jan. 23rd, 1909). Lieutenant Harold H. Leeson, from the Seconded List, to be Lieutenant (dated Jan. 16th, 1909). Lieutenant Spencer G. Walker, from the Seconded List, to be Lieutenant (dated Jan. 8th, 1909).

Major E. E. Powell has been appointed to the medical charge of the Isolation Hospital at Aldershot. Major C. C. Fleming, D.S.O., has been appointed to the medical charge of the 6th Infantry Brigade in Wellington Lines, Aldershot. Lieutenant G. H. Stack and Lieutenant A. R. Wright have joined at Aldershot and have been posted to the Cambridge Hospital for duty. Lieutenant G. E. Startin has joined at Aldershot and been posted to the Connaught Hospital for duty.

TERRITORIAL FORCE.

Royal Field Artillery.

2nd Northumbrian Brigade: Surgeon-Lieutenant-Colonel Thomas McCraith Foley, from the 1st East Riding of Yorkshire Royal Garrison Artillery (Volunteers), to be Surgeon-Lieutenant-Colonel, with precedence as in the Volunteer Force (dated April 1st, 1908). The undermentioned officers, from the 2nd East Riding of Yorkshire Royal Garrison Artillery (Volunteers) are appointed to the brigade, with rank and precedence as in the Volunteer Force (dated April 1st, 1908):—Surgeon-Major James Soutter and Surgeon-Captain Henry Robinson (to be supernumerary).

Royal Engineers.

Welsh Divisional Engineers: Surgeon-Lieutenant Henry George Frederick Dawson, from the 1st Cheshire Royal Engineers (Volunteers) to be Surgeon-Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908).

Infantry.

6th Battalion, The Northumberland Fusiliers: Surgeon-Lieutenant William G. Richardson resigns his commission (dated Dec. 15th, 1908).

Royal Army Medical Corps.

Lieutenant Horace C. Barr resigns his commission (dated Nov. 19th, 1908).

For attachment to Units other than Medical Units.—Surgeon-Lieutenant John Richardson Armstrong, from the 3rd Volunteer Battalion, The Welsh Regiment, to be Lieutenant, with precedence as in the Volunteer Force (dated April 1st, 1908). Lieutenant George S. Ward to be Captain (dated Nov. 30th, 1908). John Arthur West to be Lieutenant (dated Dec. 1st, 1908). Lieutenant Robert Burnet, from the North Midland Mounted Brigade Field Ambulance, to be Lieutenant (dated Dec. 31st, 1908). Surgeon-Lieutenant Lawrence Campbell Vigor Hardwicke, from the 5th Battalion, The Prince of Wales's (North Staffordshire Regiment), to be Lieutenant (dated Jan. 1st, 1909).

The promotion of Captain (Honorary Captain in the Army) George G. Oakley to the rank of Major carries seniority above Major William K. Clayton.

3rd East Anglian Field Ambulance: John Read Pooler to be Lieutenant (dated Dec. 24th, 1908).

3rd Welsh Field Ambulance: Lieutenant David B. Chiles-Evans to be Captain (dated Dec. 12th, 1908).

2nd Western General Hospital: To be an officer whose services will be available on mobilisation: Joshua John Cox to be Major (dated Jan. 9th, 1909).

Sanitary Service: To be an officer whose services will be available on mobilisation:—Major James Niven, from the 2nd Western General Hospital, with precedence next below Major A. A. Masson (dated Dec. 28th, 1908).

North Midland Mounted Brigade Field Ambulance: William Morton Hewetson, to be Lieutenant (dated Dec. 9th, 1908). William Carnochan Gilday to be Lieutenant (dated Dec. 15th, 1908).

IMPERIAL YEOMANRY.

North of Ireland: Surgeon-Major Edward C. Thompson, resigns his commission (dated July 7th, 1908).

SANITATION AS A BRANCH OF THE ART OF WAR.

Lieutenant-Colonel C. H. Melville, R.A.M.C., professor of hygiene at the Army Medical College, delivered a lecture upon this subject on Jan. 15th in the theatre, Royal Dublin Society, under the auspices of the Military Society of Ireland. The lecturer explained that sanitation was the art by which we prevent disease which attacks us from without. The problem of preventing disease resolved itself into two simple precautions. The first of these was to prevent the disease germs getting into the body and the second to guarantee that if they did get in they would not be able to grow there. He emphasised the necessity of purifying the water- and food-supplies and said that the question of health in the army did not depend on great scientific discoveries, not even on sanitary officers. All the science in the world could not make the army healthy unless each company officer determined to make his men fit. Sanitation gave more men to the ranks. Nelson had truly said that the great thing in military service was health, and it was easier for an officer to keep his men healthy than for a physician to cure them.

ROYAL NAVY MEDICAL SERVICE EXAMINATION.

An examination of candidates for entry into the Medical Department of the Royal Navy will be held early in May next at Examination Hall, Victoria Embankment, when 15 commissions will be offered for competition. Further information will be supplied on application to the Medical Director-General, Admiralty, 18, Victoria-street, S.W.

Correspondence.

"Audi alteram partem."

THE SECTION OF ANÆSTHETICS OF THE ROYAL SOCIETY OF MEDICINE AND THE PROPOSED GENERAL ANÆSTHETICS BILL.

To the Editor of THE LANCET.

SIR,—On Jan. 20th there was a special meeting of the Section of Anæsthetics of the Royal Society of Medicine to discuss the desirability of legislation in the department of practice which gives its name to that section of the society. It was announced that the proposed General Anæsthetics Bill, would form the basis of the discussion. For the benefit of those of your readers who may not fully be alive to the efforts which have recently been made to initiate certain urgently needed reforms, having as their object a reduction of the mortality from anæsthetics, the terms of the measure recently submitted by the Privy Council to the General Medical Council may not be without interest. They are as follows:—

I.

MEMORANDUM.

The object of this Bill is to protect the public, as far as possible, against deaths arising directly or indirectly from the action of general anæsthetics—a class of drugs employed for producing unconsciousness during surgical and medical operations, acts, and procedures.

The three following facts indicate the need for this legislative protection:—

1. General anæsthetics are for the most part powerful poisons.
2. They are constantly being used upon a vast and increasing scale throughout the country.
3. A considerable and increasing number of fatalities are annually taking place in connexion with their administration.

The promoters of the present Bill are of opinion that the solution of the problem of reducing the number of deaths wholly or partly referable to anæsthetics is to be found in a careful study of the circumstances and symptoms which have attended the deaths hitherto recorded. Such a study clearly seems to them to indicate that if general anæsthetics are to be safely and successfully administered for surgical or medical purposes it is essential that in every case the administrator shall be a person who has received (*a*) a fundamental or general medical education, and (*b*) thorough special or technical training in the administration of anæsthetics.

This Bill therefore proposes, first, to make it a penal offence (save under certain circumstances herein specified) for any person other than a legally qualified medical practitioner to administer a general anæsthetic for any surgical or medical operation, act or procedure, or during childbirth; and, secondly, to make it obligatory upon all examining bodies recognised by the General Council of Medical Education and Registration of the United Kingdom to require that all candidates, before presenting themselves for their final examinations, shall have received thorough instruction in anæsthetics, and shall have personally administered anæsthetics under the supervision and to the satisfaction of their respective teachers.

II.

GENERAL ANÆSTHETICS ACT, 1908.

An Act to regulate the administration of general anæsthetics.

Be it enacted by the King's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in the present Parliament assembled and by the authority of the same as follows:

1. Any person other than a legally qualified medical practitioner registered under the Medical Acts who shall wilfully administer or cause to be administered to any other person by inhalation or otherwise

any drug or substance whether solid liquid vaporous or gaseous and whether pure or mixed with any other drug or substance with the object of producing a state of unconsciousness during any medical or surgical operation act or procedure or during childbirth shall be liable on conviction before a court of summary jurisdiction for such offence to a penalty not exceeding £10 and in the case of a second or subsequent conviction to a penalty not exceeding £20. Provided always that a person shall not be liable to a penalty under this section if in conducting such administration he was acting under the immediate direction and supervision of a legally qualified medical practitioner or if the circumstances attending the administration were such that he had reasonable grounds for believing and did believe that the delay which would have arisen in obtaining the services of a legally qualified medical practitioner would have endangered life.

2. All examining bodies recognised by the General Council of Medical Education and Registration of the United Kingdom shall require that all candidates before presenting themselves for their final examinations shall have received thorough theoretical and practical instructions in anæsthetics and shall have personally administered anæsthetics under the supervision and to the complete satisfaction of their respective teachers.

3. This Act shall not apply to any person who having been registered under the Dentists Act, 1878, before the passing of the present Act shall administer any drug or substance with the object of producing a state of unconsciousness during any dental operation act or procedure.

4. The expression "court of summary jurisdiction" in this Act shall have the same meaning as in Subsection 11 of Section 13 of the Interpretation Act, 1899. In Scotland it shall mean any justice of the peace and also the sheriff. The expression "the Medical Acts" shall mean the Medical Act, 1858, and any Acts amending the same passed before the passing of this Act.

5. This Act may be cited as the General Anæsthetics Act, 1908.

A careful perusal of the correspondence which took place between the Privy Council and the General Medical Council as to the desirability of legislation,[1] indicates that behind the dark clouds which have for many years been gathering over this branch of practice there is a hopeful gleam of sunshine in the support given by the General Medical Council to the main principle involved in the Bill submitted to them. Everyone who is genuinely interested in the progress of anæsthesia for surgical operations will read with pleasure the views expressed by Sir Donald MacAlister, the President of the General Medical Council, in a letter which he wrote to the Privy Council—views which were fully endorsed by the General Council at its next meeting. He said:—

> Clause 1 of the proposed Bill appears to me to contain what is essential for the protection of the public in this department of practice. It would indeed be well if it could be extended to all departments of practice by which life or limb is endangered.

With such a pronouncement from such an influential quarter it was certainly expected by many of those present at the meeting of the section to which I have referred that an enthusiastic and practically unanimous expression of opinion would go forth in support of the measure taken as the basis for discussion. But to my surprise—and, I think, to the surprise of others—several leading members of the section began to attack the very principle of the Bill which had been endorsed by our supreme medical body. One distinguished anæsthetist, indeed, not content with proposing an amendment which if incorporated in an Act would not carry us as far as the General Medical Council is prepared to go, endeavoured to apply to the Bill as a whole certain critical remarks which the Council had perfectly plainly and logically made with regard to Clause 2. For some reason which I have yet to ascertain the very gentlemen whom one would have expected to take advantage of the lead given by the General Medical Council hesitated and jibbed, and the meeting terminated in a state of confusion. My chief reason, Sir, for asking you to insert this letter is that I think every member of the profession should be made aware that the question of legislation as regards anæsthetics will again come up for discussion at the adjourned meeting of the section on Friday, Feb. 5th, when I trust it will receive the attention it deserves. As I ventured to say on Wednesday last the first duty of our profession is to safeguard the lives of patients intrusted to our care. With this object we are bound to take immediate steps to reduce the appalling—and, I maintain, unnecessarily high—mortality from anæsthetics. A constructive policy of some sort must be evolved in the near future, or we shall not be doing our duty to the public. So long as highly toxic drugs such as general anæsthetics may be administered by those possessing no medical qualifications, so long will this department lag behind in the great march of progress. Directly it is made a penal offence for anyone but a legally qualified medical practitioner to administer a general anæsthetic this branch of practice will begin to rise to its legitimate level and a large number of the risks now necessarily incidental to general anæsthesia will vanish. It is perhaps unfortunate that the Bill submitted to the General Medical Council contained an educational clause, for this was the only clause adversely criticised by that body. It seems to be clear from Sir Donald MacAlister's statements that the machinery at present in the hands of the Council may be so adjusted as to secure the efficient instruction and training of every medical student in the administration of anæsthetics. If this can and will be done by the General Medical Council it may be unnecessary to encumber the Bill with the clause to which the Council has taken exception. I cannot help hoping that at the adjourned meeting of the Section of Anæsthetics on Feb. 5th a motion heartily welcoming and supporting the pronouncement of the General Medical Council as to the main principle of the Bill will be passed.

I am, Sir, yours faithfully,

Queen Anne-street, W., Jan. 23rd, 1909. FREDERIC HEWITT.

[1] Brit. Med. Jour., Dec. 5th, 1908, Supplement, p. 302.

THE DEPARTMENTAL COMMITTEE AND AMENDMENT OF THE MIDWIVES ACT.

To the Editor of THE LANCET.

SIR,—Your annotation on the Departmental Committee on the Midwives Act[1] will have rendered valuable service to the medical practitioners of England and Wales if it awakens them to a sense of the importance of the occasion and the possibly far-reaching effects of the report which may be expected in due course from the committee recently appointed. It is disappointing to find that the appointment of the Departmental Committee has attracted very little attention from those whose interests are chiefly involved, that is to say, the body of general practitioners whose work lies entirely or partially in working-class communities. Perhaps they have not yet grasped the situation or they are so overworked at this season of the year that they cannot find time and energy to prepare "copy" for the medical press. The Departmental Committee appointed by the Lord President of the Council will be chiefly concerned with two questions: (1) as to the supply of midwives; and (2) as to the due remuneration of medical practitioners called to abnormal cases by midwives acting under the rules of the Central Midwives Board.

As a member of the Central Midwives Board nominated by the Lord President it would ill become me to criticise the composition of his Lordship's Departmental Committee; but I have no desire and I am under no temptation to do so. Inquiry must be beneficial. There is, however, one defect so obvious to the medical reader as to suggest mere oversight, yet probably entailing such unfortunate consequences that it may be mentioned with every wish to be helpful and without offence to any concerned. The Departmental Committee as at present constituted contains no representative member of the medical profession conversant with the routine of midwifery work among the poorer classes, with the sort of practice in fact which brings the doctor into close relations with the midwife while she is engaged on the duties of her calling.

The Departmental Committee is without doubt composed of able men, all distinguished in their own particular official positions, but it is difficult to believe that a report drawn up by a committee even so composed will be received with the same confidence by the medical profession as that of a committee containing one or more medical members qualified by special experience, independence, and sound judgment to elicit the most valuable evidence on certain aspects of the questions involved and to assist in preparing a report. It would be a misfortune if an easily remediable defect were to be permitted to weaken the confidence of the great body of the medical profession in the value of the report of the Departmental Committee and damp the ardour with which otherwise they might coöperate in giving practical effect to recommendations.

With regard to the two chief points for inquiry, I should like with your kind permission to offer some suggestions to the professional brethren interested. These suggestions are

[1] THE LANCET, Jan. 16th, 1909, p. 187.

the outcome of considerable rumination over the reports which are regularly received by the Central Midwives Board, over what one learns in conversation with medical practitioners concerning their experiences, all weighed in the light of personal experience as a general practitioner in years gone by. My suggestions, put forward with much diffidence, may possibly form some part of the basis of discussion among those who are chiefly concerned; I harbour no illusion that they are matured in detail for practical application.

Firstly, with regard to the supply of midwives, we are at the present time, both as to quantity and quality, just emerging from a state of barbarism. There are too many midwives of sorts here in the north; it is alleged that there are too few in the south and west of England. Seeing that there are about 23,000 names on the Midwives Roll, about 15,000 actually in practice, with an annual increment of about 1000, it may be supposed that distribution by relieving the congested districts would be a way out of the difficulty. But such a course is utterly impracticable; the ordinary midwife must, as a rule, practise where she was brought up, or at least where she has long resided and is well known. With selected women made official and subsidised it would be different. Another difficulty to be overcome or circumvented lies in the fact that so few of the numerous midwives can make a decent living out of their professional earnings alone, and now that they are prevented from quackery among women and infants by the "tyranny" of the Central Midwives Board the earnings are more precarious than ever. Many of them must engage in supplementary occupations not aways compatible with the midwife's calling. Upon the whole, a distinct improvement can already be observed in the work of the midwives as a class. There are, of course, many shocking exceptions, but these are being gradually eliminated through the administration of the Midwives Act by the local supervising authorities and the Central Midwives Board.

How, then, are we to maintain a reasonable standard of efficiency while supplying a sufficient number of midwives for the classes of the population of England and Wales which require their services? A suggestion for a solution of this problem comes from the recent action of some county councils. Several English county councils have offered scholarships or bounties to suitable women to induce and enable them to go into training as midwives. Now if this is done voluntarily by some why should it not be made a rule obligatory on all county and county borough councils? That is to say, the State, as in Continental Europe, should undertake the training of the number of midwives required by the population. In this country "the State" would be the local authorities, and they would select suitable pupils for training and train only the number actually required in their own areas. This would put an end to a demoralising competition which there is some reason to fear is already causing temptation to crime. It would also do away with that selection of the unfittest which we may observe now going on all over the country. It is such an economical and easy exercise of benevolence to provide for the widow of a man-servant or to support the poor wife burdened with a chronic invalid husband to send her for training as a midwife. The ground for selection in such cases is not the fitness but the poverty of the pupil. Under a more rational system, if such women were not only poor but fitted by education and temperament to make efficient midwives, so much the better satisfied with their selection the committee of a county council might be. But it is surely a mere platitude to assert that poverty alone should never establish a claim to public assistance towards training for the calling of midwife.

Many arguments could be adduced in support of the changes—reforms which I am hinting at. The better the position of the midwife the more it will become an object of ambition for the most suitable class of women and the more the midwife will fear to lose her post by transgression of either moral or legal obligations in her professional capacity. It might be premature to suggest here the establishment by coöperating local authorities of rate-aided lying-in hospitals for the training of midwives like the State-supported maternity hospital schools of France and Germany and other countries. These institutions will come with the municipalisation of *all* public hospitals and the restriction within reasonable limits of "hospital abuse," including, too, small staffs and indecent partiality in making appointments. This consummation is not, perhaps, such a remote event as the many who are indifferent to the signs of the times may imagine.

The second important question before the Departmental Committee is the remuneration of medical practitioners who are summoned at the request of midwives to render assistance in cases of danger or difficulty. The worst blot upon that very defective measure, the Midwives Act, 1902, is the entire absence of any germ of a provision for the payment of fees to medical men called upon to render their professional services to poor women in obstetric emergencies. Probably the advocates of the Bill felt in their haste to get it through that if it were weighted with controversial clauses it would sink out of sight. Nevertheless, with all its weaknesses in the past the Act has been useful and it seems destined with some amendments to work a beneficent social revolution. And the most urgent amendment required is the removal of the intolerable grievance from which the hardest working members of the medical profession suffer at the present time. It is therefore highly desirable that suitable witnesses should go before the Departmental Committee and offer evidence founded upon intimate personal knowledge of the working of the Midwives Act as it has affected the general practitioner. It seems to me that sympathetic and experienced witnesses from the Manchester and Salford area alone could contribute most important, possibly sufficient, evidence on the working of the Act in urban communities. Manchester shows the administration of the Act at its best; Salford at its worst. There can be few districts in the country where such a striking and instructive contrast forces itself upon public attention in what is to all intents and purposes the same population.

In Salford an unenlightened borough council refuses to administer the Act in an efficient manner and subjects the medical practitioners to ill-usage, while an unspeakable board of guardians endeavours to increase the pauper element among the poor and by little else than chicanery withholds the well-earned remuneration from practitioners who are so unfortunate as to do the work in emergencies for the district Poor-law medical officers when they cannot be found. In Manchester everything is in favourable contrast to all this discreditable maladministration; the details would occupy too much space to describe, but the facts are open to the observation of the whole country; Manchester officials have nothing to conceal. I have no idea what the scope of the evidence required by the Departmental Committee may include, but some account of the administration of the Midwives Act in Manchester and Salford could hardly fail to be relevant and useful, and our local medical organisations might very well combine in an effort to get the facts brought under the notice of the Departmental Committee.

As to the future, by far the most important question which keeps thrusting itself upon our attention and must find some solution is this: what amendment of the Midwives Act will remove the exasperating annoyances inflicted upon so many practitioners by greed and incompetence in the administration in some parts of the country? The doctors give their services by day or night, well knowing that they will receive no payment, or they refuse to answer the summons, and then they are held up to the scorn and contempt of their neighbours as hard-hearted and cruel monsters. Such a state of things is intolerable; it has been put up with vastly too long; it should cease forthwith.

This is no political question; it is one purely of fair dealing and social amelioration. The whole medical profession might combine and use such influence as it may possibly possess in order to obtain a reasonable settlement. Local authorities should be made legally responsible for the fees of the accoucheurs who come to the aid of the midwives in an emergency. The employment of a midwife under present social conditions may well be accepted as *primâ-facie* evidence of poverty in the family of the patient, and if any proportion of emergency fees is recoverable from the husbands that must be a question for the local authority, not for the doctor. He should be as confident of payment for work done as he is at present of receiving in due course and without worrying formalities his small fee for the notification of certain infectious diseases. It is all skilled work done in the interests of organised society. Prompt and skilful treatment in cases of obstetric

emergency saves lives and prevents the misery which results from certain chronic ailments. Such aid brought to the poorer working-class women has the additional advantage of ultimately saving the pockets of the ratepayers. To the ratepayer it matters little or nothing whether the pittance which goes into the doctor's pocket is administered by the city or borough or county council, or even by the board of guardians. He only wishes to know that his money is disbursed fairly for value received without the harassment and ill-usage of those who have earned it, and he does not clearly see why the Poor-law should come in at all.

If you work out the arithmetic of the situation by addition and subtraction you will reach the conclusion, on the debit and credit reckoning without considerations of sorrow and suffering, that it would well repay the ratepayers of city or county to take matters out of the hands of the "guardians of the poor" throughout the length and breadth of the country, to put an end to the ill-usage of the humble medical practitioner, and to pay him decently well for his services.

I am, Sir, yours faithfully,

Manchester, Jan. 18th, 1909. WILLAM J. SINCLAIR.

To the Editor of THE LANCET.

SIR,—Sir William J. Sinclair has done good service to the general practitioner by drawing attention to the formation of this committee by the Privy Council. There is no doubt that in 1902 the medical profession was caught napping. There will be no excuse for us if we lose this opportunity now offered for amending the Act and the present rules of the Central Midwives Board which are only in force until Sept. 30th next.

The British Medical Association has been asked if it desires to tender evidence. The reference to the Departmental Committee is "To consider the working of the Midwives Act, 1902, and in particular with reference to the supply of midwives and the cost of training, the remuneration of medical men summoned on the advice of midwives under the rules in pursuance of the Act, and the delegation of their powers by county councils under the Act."

There seem to be two principles that should be urged: (1) adequate and immediate representation of the general practitioner by general practitioners nominated by the Association on to this Departmental Committee; (2) adequate representation of the general practitioner by general practitioners elected by the Association on to the Midwives Board. With these acceded to, as also: (3) adequate guaranteed payment for services rendered to the State by attending women before, during, and after labour; and (4) no *State* subsidising of midwives, the profession can rest content that the Act will not be able so grossly to be worked to the detriment of the doctor or of the woman and child for whose benefit it has been enacted. Will every general practitioner, therefore, *at once* bestir himself and take steps to induce his local medical society (or division of the Association, branch council or executive committee of the division) to put at the disposal of the Association evidence on the four points referred to the committee, as also a resolution in favour of the four principles enumerated above? Time is valuable.

I am, Sir, yours faithfully,

London, S.W., Jan. 26th, 1909. E. ROWLAND FOTHERGILL.

GOUT IN A WIRED BONE.

To the Editor of THE LANCET.

SIR,—In THE LANCET of Jan. 23rd, p. 219, Mr. Edred M. Corner, in his article on fractures of the olecranon, after describing a case in which an acute attack of gout followed wiring, says: "It is the only case of gout in a wired bone which I have seen or heard of." The following is an almost exact duplicate of Mr. Corner's case.

Fourteen years ago I assisted the late Mr. William Square in wiring the patella of a man, aged 50 years, for a recent transverse fracture. The case impressed itself on my memory for two reasons. Firstly the drill, weakened by the eye, which in those days the instrument maker insisted on making in the end of the blade, broke off and remained embedded in the upper fragment, compelling me to drill another hole, and secondly the joint within 48 hours of the operation presented every appearance of impending suppuration. This condition, with slight remissions, lasted a week, at the end of which period an attack of gout in the great toe gave the clue to the condition of the knee-joint.

The patient suffered only moderately, and, being accustomed to frequent attacks of gout, was much less concerned about his swollen knee than were his medical attendants.

The patient recovered with a perfect knee-joint.

I am, Sir, yours faithfully,

Plymouth, Jan. 24th, 1909. C. HAMILTON WHITEFORD.

POISONING FROM ANILINE BLACK ON SHOES.

To the Editor of THE LANCET.

SIR,—Your interesting remarks on "Poisoning from Aniline Black on Shoes" in the issue of Jan. 9th, p. 117, opens up the at present debateable question as to which is the more toxical, aniline or some of its salts, particularly the hydrochloride. Most competent authorities, such as Sir Thomas Oliver, Dr. T. M. Legge, and Dr. W. F. Dearden, have inclined to the former view; nothing but direct experiment can settle this point, which at the present moment is under investigation by Dr. Sellers.

For some time I have looked upon many cases reported as aniline poisoning as being due to its salt, the hydrochloride; it is just possible that the interesting case you cite may claim a like causation. The majority of these aniline black dyes for leather are made with the salt and contain no free aniline. The following prescription has been given me as a common sample of the ingredients composing this particular class of black dyes: Aniline hydrochloride, 100 parts; copper sulphate, 0·1 part; sodium chlorate, 6·0 parts; and ammonia, 1·6 parts. The above are dissolved in water and thickened with gum. The large proportion of the hydrochloride contained in it is very noteworthy, and although this salt may not be as volatile it is probably more poisonous than aniline, being absorbable by the skin. This will account for the symptoms observed.

The results of the analysis of the urine, such as the presence of the oxidation products of aniline, and the absence of aniline, would seem rather to favour the view of an intoxication by the salt rather than by the oil. This may be contrary to the current opinion but is supported by a case I have now under investigation.

I am, Sir, yours faithfully,

Wigan, Jan. 23rd, 1909. R. PROSSER WHITE.

THE CAUSE AND PREVENTION OF DENTAL CARIES.

To the Editor of THE LANCET.

SIR,—If you have not already closed this discussion, I should like to point out how very little evidence has been produced in support of the view that "the essential cause of dental caries is a faulty system of feeding." Dr. J. Sim Wallace has had success in ten cases (I am afraid he knows nothing of the failures of his system), and that makes his theory well worth trying; but ten cases are no proof, for any man in general practice can bring forward ten or thrice ten "pap-fed" children with sound teeth. In his contention with the editor of the *Dental Surgeon* he is claiming the skin before the bear is killed, or at all events before he has proved that it is dead! The credit of a discovery goes not to him who first suggests it but to the man who proves it to the satisfaction of experts. There is hardly a modern discovery that has not been vaguely suggested by someone in the past. When Dr. Wallace has proved his theory he will well deserve and will receive the credit, no matter who first suggested it.

The interesting information from Dr. G. Elliot Smith that dental decay was common only amongst the adult aristocracy in Ancient Egypt does little, if anything, to support Dr. Wallace's theory, unless it can be proved that the babies then were given hard food before they were weaned and that the poor ate harder food than the rich. I thought they lived on lentils and onions boiled in a "flesh pot" with a morsel of meat to give them a flavour. A very poor peasantry, like that in Ancient Egypt, almost always boils its food, for that is the easiest way to cook vegetables, and the way to make meat go the furthest. But this would not be a food

to cleanse the teeth such as Dr. Wallace demands. No doubt what in history is called "luxury" and in our own days "decent living" does produce dental decay, but the exciting cause may be the temperature or the chemical constitution of the food, or it may not be due to the food at all. Perhaps Dr. Elliot Smith will give us some information as to the food of the Ancient Egyptian peasantry.

I am, Sir, yours faithfully,

Silverton, Exeter, Jan. 18th, 1909. O. CLAYTON JONES.

P.S.—The Ancient Egyptian aristocracy were great eaters of sweetmeats, at all events at feasts. Children were admitted to feasts, and we are told they were exempt from caries, so we get no nearer the truth.

To the Editor of THE LANCET.

SIR,—In your issue of Jan. 16th I observe Dr. Harry Campbell states that for many years he "has been imbued with the notion that the teeth may suffer from insufficient use," and he speaks of Dr. Wallace having enunciated a "great truth" in saying that dental caries may be prevented by "giving the teeth plenty of work to do" and by "having due regard to the order in which certain articles of food are taken."

I do not myself, however, see how this theory of more work for the teeth to insure their keeping in good condition can be correct, and for the reason that the Chinese, who have, as a rule, very good teeth, live mainly on rice or millet, with vegetables and sometimes a little fish. They do eat other things, but what article of diet gives their teeth much work? I know of none and I do not think that they are in the habit of masticating their food more than we do.

I am, Sir, yours faithfully,

Savernake, Torquay, Jan. 19th, 1909. F. R. CAVE.

EPSOM COLLEGE.

To the Editor of THE LANCET.

SIR,—From a circular issued by the secretary of this institution I perceive that its council "appeals alike to the profession and the *public* not to allow the College to languish for want of funds." With your permission, therefore, as one of the public, I should like to make through your columns one or two suggestions the adoption of which is likely in my opinion to further the objects the council has in view. The circular, very properly, gives full particulars of the excellent work done by the College, but omits information likely, I think, to commend its appeal to the man of business, and I venture to suggest therefore that with these particulars should be published a statement of accounts showing in some detail the amount of the income and expenditure of the College during the last two years.

The economical and efficient management of an institution such as this is assuredly no easy task, but one requiring very careful control and supervision. The council no doubt, as far as its professional duties permit, does its very best in this matter, but I cannot help thinking that for administrative purposes it would be strengthened by the addition of a few non-professional business men to its number.

I am, Sir, yours faithfully,

Jan. 18th, 1909. J. P.

THE NEW DENTAL HOSPITAL, LIVERPOOL.—The foundation-stone of the new Dental Hospital was laid on Jan. 16th by the Earl of Derby, the president of the hospital. The hospital, which will be one of the finest of the kind in the kingdom, will be built in the Georgian style of red brick with stone dressing. The ground floor will give ample accommodation for the operating work. The first floor will be devoted to the educational work of the School of Dentistry and above will be the filling rooms, with a provision of 60 chairs. The site of the new building is at the corner of Pembroke-place and Boundary-place, within a few hundred yards of the University and the Royal Infirmary. The estimated cost of the building and equipment is £10,000, of which the greater part has already been subscribed. The Dental School, opened in 1876, had last year an attendance of 27,000 patients. Sufficient land has been secured for a future extension of the hospital. Mr. W. H. Gilmour is the warden of the Dental School.

MUNICIPAL ACTION IN THE PREVENTION OF TUBERCULOSIS AT NEW YORK.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Professor Robert Koch created a great sensation throughout the United States of America by the praises which he lavished upon the New York sanitary authorities. At the International Congress on Tuberculosis recently held at Washington he said that the successful execution of the measures taken in New York City constituted the most important feature of the war against tuberculosis. "I consider the New York methods wonderful," said Professor Koch; "I think that the compulsory notification of all cases of tuberculosis is characteristic of American vigour. The removal by force if necessary of all patients who are dangerous to their neighbours is a step far in advance of European methods." Dr. Arthur Newsholme, who represented the English Local Government Board, joined in and said he knew of no city where the total programme for prevention of tuberculosis is as complete as it is in New York, but he prudently added that in England the public would not permit such forcible measures as were taken in New York. These sentences were eagerly caught up by the American press and much was made of them. To the German mind, and more especially to the German official mind, dragooning methods generally commend themselves, but the Americans who have studied the subject were not a little startled to find themselves thus exalted by so great a *savant* as Professor Koch who was also the principal representative of the German Government. Under the same roof where the Congress sat were the exhibits of the Committee on the Prevention of Tuberculosis of the New York Charity Organisation Society. In the printed catalogue of this exhibit, and under the heading "Photographs," will be found "No. 5, Tenement Home, No. 6, The Dark Bedroom, where Tuberculosis Breeds; No. 7, One of New York's 300,000 Dark Bedrooms." Including rooms that give on air shafts which measure less than 5 feet by 5 feet, Mr. Ernest Poole, of the University Settlement, estimates in his printed report that there are 361,000 dark rooms in New York. It is doubtful whether any other city in the world has so sinister a record. A dark room means an inhabited room which has no window or door giving on the outer air which either receives no light whatsoever or only such light as it can derive from some other inhabited apartment which has a window of its own. But in the centre of these huge blocks of tenement dwellings there is sometimes a little sort of slit or narrow shaft, far too narrow to let any light down, but which may enable a little foul air to pass out. Some of these blocks, though six storeys high, have back windows opening on to air shafts which are only 6 feet long and 12 inches wide. During the many years that I have travelled from country to country, visiting the disease-stricken slums of the great cities of Europe, I have never heard of a concentration of dark rooms on one spot such as may be found in New York. The compulsory notification of tuberculosis may be, as Professor Koch says, a very good thing, but the continued existence of hundreds of thousands of dark rooms is most emphatically a very bad thing.

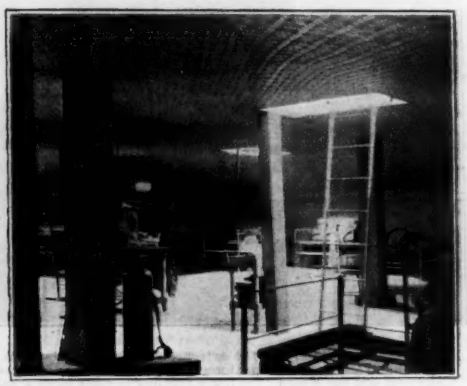
If Professor Koch lavished praises on what has been done in New York the Americans themselves were not insensible to what has been accomplished in Germany. The Principal of the University of Chicago, in a notable speech delivered at the Washington Congress, first insisted that in no country had private charity provided adequate means for dealing with the tuberculosis problem. Also workmen were most fortunately and for the most part too proud to apply for charitable aid. Then he added that "there remains nothing but some form of compulsory sickness and invalid insurance, for other systems usually fail. If we turn to the German methods we find that they are complete and adequate." He then went on to explain what has been described on many occasions in these columns—namely, that Germans of moderate means had by insurance acquired the right to full and proper sanatorium treatment or whatever other treatment was necessary. Above all, while the patient is helpless his family is provided for and his illness is not aggravated by anxiety about them. Finally, the speaker came to a practical conclusion by pointing out that the Supreme Court of the United States had in the two cases, Holden *v.* Hardy and Curt

Miller *v.* The State of Oregon, proclaimed as a fundamental principle that whatever is necessary for the public health, safety, and welfare is a proper object of State and national legislature. Then he urged that as there was already a compulsory Poor-law to provide for the victims of tuberculosis after they became helpless there should be compulsory laws enacted to prevent the spread of the disease. The speaker had previously shown how the German law on compulsory insurance had largely contributed to reduce the prevalence of tuberculosis in Germany.

Nevertheless, and though, of course, acquainted with the gigantic work accomplished in Germany, Professor Koch was greatly impressed by what is done in New York. Professor Koch's praises were principally based on the report by Dr. Herman M. Biggs, general medical officer, department of health, City of New York. The latter claimed that, since its inauguration in 1894, the anti-tuberculous work of the New York sanitary authorities has served as a model at home and abroad. At that time all hospitals and public institutions were required to report their cases, and private physicians were asked to do so. To aid in this, sputum was examined free of charge whenever the name and address of the patient were given. In 1897 notification by private physicians was rendered compulsory. To-day all cases of tuberculosis are notified and they are divided into two large groups. The first group consists of patients reported by private medical practitioners and for the proper care of these the medical attendant renders himself responsible. The second group consists of those—generally poor people—for whom no medical practitioner will assume such a responsibility. In the first case the health department takes no further action. In the latter case the authorities send trained nurses or physicians to the home of the patient. If better air is needed and if there is a vacancy the patient is removed to a country sanatorium. If the patient cannot leave the city he can receive free medical care at one of the many tuberculosis dispensaries. If his home surroundings, Dr. Biggs stated, "are fairly decent, and he is bedridden, he may receive medical care at the hands of the board of health physicians, assisted by the trained nurses; if he needs hospital care he is sent to a special hospital; and, finally, if the consumptive is filthy in his habits and so situated that he is a menace to those about him, the board of health may forcibly remove him to a special tuberculosis hospital."

To remove forcibly those who are too poor to take proper care of themselves—for in practice that is what the above generally means—is another illustration of the deplorable tendency to consider wealth virtue and poverty a crime. Doubtless the forcible removal and segregation of such cases are a very effective measure for checking the spread of the disease. But if force is going to be employed, if armed policeman are going to seize and to isolate the unfortunate victim of insanitary tenements, how about the owners of and speculators in these insanitary dwellings? Have not such buildings been erected with the most callous disregard as to the consequences which it was well known would ensue if people were allowed to live in them? Are they not recognised to be death-traps? Have they not been denounced over and over again? If the law and the administration that governs New York are a model to the world, it is a model in so far as it does deal energetically with the weak, poverty-stricken, and defenceless victim, but it still spares the wealthy and influential creator of the conditions which most favour the spread of disease. Some slight improvement, it is true, has been effected and there are stipulations in regard to the erection of new tenement houses compelling the supply of a little more light and air; but other towns in other parts of the world have dealt much more effectively with their insanitary areas. It will be said, however, that excellent results have been obtained and that the death-rate from tuberculosis in New York has dropped from 4·42 per 1000 in 1886 to little more than half in 1907. At the exhibition there were diagrams giving the following figures: 1881, New York general death-rate, 38·6 per 1000; from pulmonary tuberculosis, 4·27 per 1000. In 1901, general death-rate, 20·44; pulmonary tuberculosis, 2·47. In 1907, general death-rate, 18·76; pulmonary tuberculosis, 2·37 per 1000. For Greater New York the figures are: In 1898, general death-rate, 20·2; from pulmonary tuberculosis, 2·25. In 1907, general death-rate, 18·70; from pulmonary tuberculosis, 2·10 per 1000. Now the compulsory notification of tuberculosis and the coercive measures which followed thereon only commenced in 1897. The great reduction in the general death-rate and in the special rate due to tuberculosis had already taken place. As a matter of fact, however, and so far as a comparison with European results are concerned, these figures are useless because they deal with absolutely different conditions. A very large proportion of the population of New York is a picked population and such conditions do not exist in any other part of the world. New York is to a large extent peopled by emigrants. Of course, all the emigrants who land at New York do not stop there. The majority go farther afield, but many do remain in New York for a while just at the time when many of them are young and vigorous. But what lessens the death-rate in New York far more than this is the fact that the emigrants are, as I have called them, a picked population. Mr. Robert Watchorn, commissioner of immigration of the port of New York, states that during the year ending July 1st, 1907, there landed at New York 1,004,756 immigrants, yet and in spite of the medical examination only 40 cases of pulmonary tuberculosis were discovered and 370 cases of tuberculosis of other descriptions. Thus the vast hordes of emigrants who help to people the United States are, on arriving, practically free from tuberculosis. It is the rigorous medical examination on the European side of the Atlantic which largely contributes to the reduction of tuberculosis in America. The fact that the disease subsequently breaks out among such a picked population may often be due to the sanitation of the places where they have to live.

FIG. 1.



Metropolitan Hospital, Blackwells Island. Employees' room with no window for light and ventilation only by traps in the roof which have to be closed in rain.

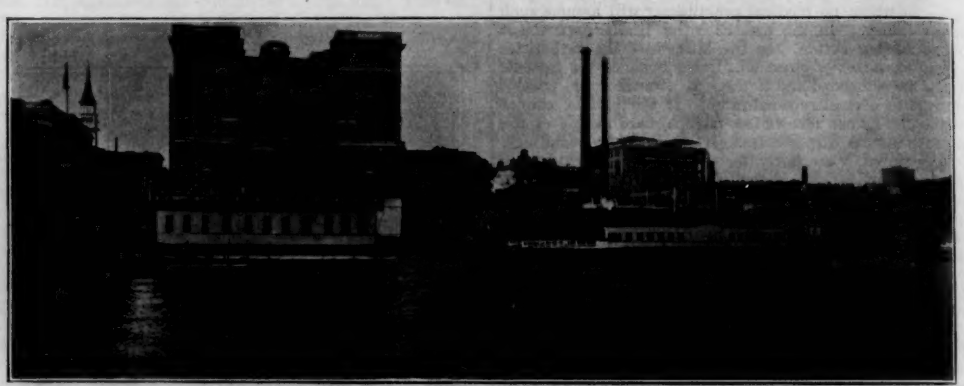
To return to the special measures taken in New York and on which the authorities can be warmly felicitated, the sending of trained nurses and experienced physicians to the homes of those who cannot afford to pay for efficient treatment is at once a most humane and useful measure. Though objections were raised to the compulsory notification of all cases of tuberculosis there is no doubt that the information thus supplied must greatly facilitate the task of the health authorities. The compulsory removal of the patient is, however, far and away the greatest interference with the private life and liberty of the subject. That the removal and segregation of advanced cases, specially if they live in crowded dwellings, constitute a most useful measure no one will be disposed to deny. This is a contention that Dr. Arthur Newsholme, both at the Paris Congress of 1905 and at the Washington Congress of 1908, specially set out to prove. But while there is no denying the utility of such a measure, it does look more like punishing the victim rather than the author of the evil. In any case, and before a patient, in spite of his protests and the tears of his family, is forcibly removed from his home, a proper hospital should be provided. In New York this is not always the case. Not only is the hospital accommodation deplorably insufficient but very unsuitable buildings are dangerously overcrowded. If those who so loudly praised

the coercive measures taken had first visited the places where the coerced patients are put they might have moderated their transports. This in any case I was able to do and before the Congress met. The experience accounts for my lack of enthusiasm. The most important of these public establishments is the Tuberculosis Infirmary, which is a division of the Metropolitan Hospital on Blackwells Island. This is intended for patients in all stages of the disease who are not able to pay for private treatment. The accommodation is set down at 684 beds, but this is officially recognised to "represent some degree of crowding." On the day of my visit I was told that the buildings which I saw should only contain 540 patients but that there were present at the moment no less than 815 patients. Not only were the dormitories crammed but there were a large number of beds in the corridors. In one part a turret containing bathrooms block out the light which the patients much need. In the dormitories I found some ornamental ledges coloured with dust and washhand basins with corks or stoppers retaining soapsuds. Another part of the building faced a wall and was almost dark. In the dining-room the patients are terribly crowded together at narrow tables where they breathe in each other's faces as they eat. Their knives and forks are thrown about anyhow on porous wooden tables—in fact, it seemed to me that elementary domestic hygiene was often neglected.

Undoubtedly a great deal is now attempted. New buildings and active measures of reform are to be noted on all sides, but there has been some shocking neglect in the not very distant past. Administrators have been appointed to Blackwells Island, not because of their technical competence, their knowledge of, and sympathy with, the poor, but because they had rendered political services to the party in office. Fortunately the present commissioner who governs the island does not attend to politics and there has been more progress during the last year or two than for nearly a generation. But these excellent efforts are greatly stinted for want of money, while it is quite clear that Blackwells Island is not altogether a suitable place for the treatment of pulmonary tuberculosis. It is conveniently near the centre of the town but very damp, and it is not wise to put so many patients suffering from tuberculosis close to a general hospital, an asylum for the aged and infirm, workhouses, and the various other Poor-law services. These many institutions are beginning to crowd up Blackwells Island and the tuberculous patients might well be removed. There is no really suitable building for their reception and treatment on the island. This might be a separate service on one or, better still, on several more appropriate sites.

For administrative purposes there is, of course, a great advantage in concentration. Fig. 2 shows that at New York

FIG. 2.



East River, New York. To the extreme right in the distance is the Metropolitan Tower, Madison-square, the highest inhabited building in the world. In the foreground are the pier and central office of the Department of Charities. Next is the new Bellevue Hospital and the Morgue, the lower building in front being a part of the old Bellevue Hospital. The old ferry boat *Southfield* is now used as a day camp for tuberculous patients, immediately behind which is the new Pathological School. The high square building in the central distance is the Bellemont Hotel, facing the New York Central Railway station.

So insufficient is the accommodation that some of the employees were compelled to sleep in attics which are qualified as fire traps and condemned by the board of health. Fig. 1 is a reproduction of a photograph of one of these attics. There are no windows in the low walls. The trap-doors or skylights to the roof admit some light and when it does not snow or rain they may be opened so as to let out foul air. A glance at the illustration will show the insufficiency of such apertures. Some of the many beds never receive direct rays of light and therefore cannot be purified while they remain in such attics. Patients are removed by force to the hospital because they have not the proper means of nursing in their own homes, and yet at the hospital itself some of the attendants are made to sleep in places well calculated to predispose them to contract the disease. This grievance, however, is fully recognised and by this time has, perhaps, ceased to exist. New buildings have been erected and others are in course of construction where there will be ample toilet and bathing arrangements, comfortable and pleasant sitting- and dining-rooms, and proper dormitories provided for the employees. On the mainland the new Nurses' Home and Training School building of the Bellevue and allied hospitals is a most remarkable building. It will provide living quarters for 306 nurses and 22 employees of the training school and many provisions will be made for their comfort.

this end at least has been very successfully attained. To the extreme right there is in the background the loftiest inhabited building in the world, the tower of the Metropolitan Insurance Company. This is on Madison-square in the very heart of New York. To the left of this the square building is the Bellemont Hotel that faces the Central Station, which is in 42nd Street and also in the heart of New York. In front of these is Blackwells Island and the great public assistance services. In the foreground of the illustration there is the large pier where those who go to Blackwells Island generally embark and here also are situated the central offices of the Department of Charities. Then we have the greatest hospital, the Bellevue Hospital. Moored close at hand is the old ferry boat the *Southfield*, with its two decks that are now used as a day camp for tuberculous patients. Behind the boat the large and lofty new pathological school is in course of construction. All these important institutions are most accessible and there are not many towns that can boast of such a convenient concentration of public services.

Undoubtedly the more recent efforts made by the New York authorities to check the spread of tuberculosis are interesting, encouraging, and in many respects worthy of study and even of imitation. At the same time, the desire to be amiable and complimentary while attending an international congress should not blind even the official delegates of foreign Governments to some of the more obvious defects.

Indeed, the very authority with which they speak gives them an opportunity of moving public opinion and of bringing a little useful pressure to bear in stimulating beneficent reforms.

SANITATION IN INDIA.

THE PREVALENCE OF ENTERIC FEVER AMONGST BRITISH TROOPS IN INDIA.

(FROM A SPECIAL CORRESPONDENT.)

V.[1]—*Prevalence of Enteric Fever Amongst Officers.*

IT may be thought that the British officer ought to be less exposed to the risk of infection than the men, but this is not the case. In officers' messes of many British regiments very little attention is ordinarily paid to carefulness in the preparation of food, to the boiling of water and milk, to the cleanliness of cooks, utensils, safes, and cloths, or to the sanitation of the kitchen and its environs. The young officer is often exceedingly careless with respect to the water, milk, and butter which he uses in his bungalow, and on more than one occasion it has been recorded that his early breakfast has been brought to him by a servant of the lowest caste, while he pays very little attention to the sanitary condition of his compound and out-buildings. An instance is reported where a *methar* (latrine cleaner) who made tea for a few young officers living in a bungalow was caught in the act of smuggling provisions in his *methar's* basket to patients in hospital. The officers on whom he attended contracted enteric fever. The trips that officers make into the jungle after sport, often camping alongside native villages, may also expose them to the temptation of unapproved water when hot and thirsty. As a matter of fact, the young officer is probably more frequently exposed to the risk of enteric infection than the non-commissioned officer or private soldier, for he is not so carefully looked after in his mess and bungalow. Endeavours are being made to remedy this state of affairs by ordering inspections of these premises. Turning to statistics, it will be seen that the increased prevalence of enteric fever year by year up to 1898, as observed amongst the troops, women, and children, is also to be noted in the case of officers, and that the decreased prevalence manifested in 1899 and 1900 was also common to them.

Prevalence Amongst Patients in Hospital.

Patients in hospital suffering from other diseases may occasionally contract enteric fever from patients already in hospital for this disease. Infection may be direct or indirect; the former, however, under present regulations in India, should not occur, as all enteric fever patients are treated in isolated wards, unless in the rare case of a patient admitted to hospital for one disease and at the same time suffering from enteric fever in the incubation stage. In civil practice, in some hospitals at home and others on the continent, one frequently sees enteric fever under treatment in the general wards. This practice should be strenuously condemned, as all recent research proves that direct infection is a most powerfal factor in the spread of the disease, and this is particularly the case in time of war. Isolation as thorough as possible, not only of enteric fever cases from all other patients but even separation of severe types of enteric fever from milder cases in the enteric fever wards, is not only to be recommended but should be insisted on. Notwithstanding every precaution a few cases of indirect infection occur every year in India, aerial convection or infection by flies appearing to be the most probable explanation.

Seasonal Prevalence.

A study of the annual charts published in the Army Medical Department reports will show the monthly prevalence of enteric fever amongst the troops in India and its distribution in the military divisional areas. The periods of greater prevalence in the Bengal and Punjab areas coincide with the commencement of the hot weather—i.e., the first half of the year—and in the Bombay and Madras areas with the months in which the rainfall is greatest—i.e., the second half. The latter point is particularly marked in the case of Quetta, where the season for enteric prevalence is from July to November, while the station is usually entirely free from the disease in the earliest months of the year. Both facts are well demonstrated in the epidemics of 1896, 1898, and 1900. It is stated that the first months of the enteric season at Quetta are marked by dust and some water scarcity, whereas in many of the Bombay and Madras stations enteric prevalence is associated with the monsoon period. It is regularly observed that the period of maximum prevalence occurs in April for Bengal, in May for the Punjab, and in August or September for Bombay and Madras. The charts for Bengal and the Punjab regularly show three well-marked periods of special prevalence. First, with the commencement of the hot weather the disease begins to increase and reaches its highest point for the year, in April for Bengal and in May for the Punjab, and it is interesting to note that the increase begins to show itself in February in Bengal and a month later in the Punjab. A sudden decrease of prevalence in both commands is observed in June and July, but in 1900 this fall was less abrupt than usual. The second period of prevalence is a small, but usually a well-marked, increase, beginning in August in Bengal, reaching its highest point in September and falling again in October; in the Punjab the second increase is a small one, occurring in August with a fall in September and October, but in 1900 this increase was scarcely marked at all. The third period begins in November and continues through December into January in both commands. In Bombay and Madras there is a slight rise in April but the special season of bacterial activity is probably July (corresponding to the monsoon period), with increased disease prevalence in August and September.

Prevalence amongst Stations.

Enteric fever appears endemic in some military stations and in many it is prevalent throughout the year. Cases may occur in all parts of barracks and yet it may be impossible to trace any direct connexion or link between them. Even when the disease assumes an epidemic form it is more often than not impossible to trace the source of infection with any degree of certainty.

Prevalence amongst Women.

The extraordinary immunity from enteric fever enjoyed by women and children in most stations deserves comment. They live in quarters usually aligned with the barracks and are exposed to the same factors of disease, yet very few cases occur amongst them. Perhaps it is something apparently peculiar to the life of the soldier that predisposes him to attack, and this is believed to be his "lowered resistance" caused by duty or over-fatigue, exposure to sun, habits, &c. At the same time we must not forget the significant factor that women and children use closed commodes and not open latrines as men do, and this may have some bearing on their greater immunity. A reference to statistics will show that the annual increased prevalence amongst officers, men, and children up to 1898 was also observed in the case of the women, and that the decreased prevalence manifested in 1899 and 1900 was also common to them. It may also be noted that although women remain remarkably free from enteric fever in India, yet when they are attacked a very high mortality rate is observed.

(To be continued.)

[1] Nos. I., II., III. and IV. were published in THE LANCET of Jan. 2nd (p. 62), 9th (p. 134), 16th, (p. 197), and 23rd (p. 277), 1909, respectively.

THE EIGHTH AUSTRALASIAN CONGRESS OF MEDICINE.

(FROM OUR OWN CORRESPONDENT.)

(Concluded from p. 279.)

WORK IN THE SECTIONS.

Eye and Ear, Nose and Throat.

Dr. J. LOCKHART GIBSON (Brisbane) presided and opened a discussion on Syphilis of the Eye. He also read a description of an operation for Entropion. A short paper on Interstitial Keratitis was read by Mr. J. P. RYAN (Melbourne), who also read a paper on the Diagnosis of Trachoma. A general discussion of eye syphilis ensued and members agreed with the opener as to the special facilities afforded by the

eye for the study of this disease and the results of treatment. The frequency of syphilis in Australian clinics was generally agreed to. Dr. A. L. KENNY (Melbourne) showed a series of lantern views illustrating the principal Eye Clinics of Europe, Asia, and America. Lantern views were also shown by Dr. L. S. MILDER (Tasmania) illustrating Egyptian Travelling Ophthalmic Hospitals and by Dr. W. KENT HUGHES (Melbourne) to show Abnormalities of the Accessory Sinuses of the Nose. Dr. W. O. MAHER (Sydney) dealt with the Prognosis and Treatment of Glaucoma and incidentally described an operation to secure a permanent cystoid cicatrix. A mattress suture used in cataract extraction was shown by Dr. J. C. PALST (Auckland, New Zealand).

Mr. A. J. BRADY (Sydney) recommended Bosworth's saw and Carnault Jones's spokeshave in the treatment of nasal deformities, and clear indications were given for suitable cases of Killian's submucous resection. Specimens prepared to show the relations of the facial nerve to the radical mastoid operation were shown for Dr. R. NOLAN (Sydney). Dr. EWING (Melbourne) advocated the intromeatal and tympano-meatal mastoid operation in chronic middle-ear suppuration.

The section passed with enthusiasm, on the motion of Dr. KENNY, a resolution expressing its appreciation of the long-continued, original, and epoch-marking work of Hofrath Professor Dr. Adam Politzer, and offering him the homage of its respectful admiration on his retirement from the chair of professor of diseases of the ear in the University of Vienna.

Diseases of the Skin and Radiotherapy.

The work in this section was opened by the President of the section, Dr. W. MCMURRAY (Sydney) with an address. He claimed for diseases of the skin a foremost place as a branch of scientific medicine and without hesitation he asserted that it beyond all others offered attractions to the student of general pathology.

After papers by Dr. L. HERSCHELL L. HARRIS (Sydney) on Roentgenography (with illustrations), which were also contributed to by Dr. F. J. CLENDINNEN (Melbourne), a paper on the Relative Proportion of Various Skin Affections in Australia was read by Mr. A. W. FINCH NOYES (Melbourne). His conclusions were based on an analysis of 5000 cases of skin affections that had come under his own observation. Apparently no affections of the skin existed in the south-east portion of Australia which had not been observed in English clinics. The frequency of occurrence often differed considerably when compared with English figures, but the difference was no greater than was seen between statistics collected in London and those compiled in Scotland. The types had not as yet been modified to any appreciable degree either by climatic or other surrounding influences. One morning was devoted to the demonstration of skin affections in living subjects by lantern slides, by sections, and *moulages*. Cases were shown illustrating the effects of treatment by liquid air and carbonic snow. Mr. HERMAN F. LAWRENCE exhibited *moulages* of some rare skin diseases. Mr. NOYES showed several cases of Advanced Molluscum Fibrosum and by the aid of microscopic sections demonstrated the origin of these growths in the proliferating endoneurium of minute nerve twigs, the growths being really neuro-fibromata. Dr. ALEXANDER ROBERTSON (Tarawa, Gilbert Islands), in a paper on the Means of Transmission of Yaws (an affection which is very common in the Gilbert Islands), detailed many points of difference between it and syphilis. A paper on the Treatment of Syphilis by Dr. MCMURRAY and one by Mr. NOYES on the Ratio of the Later Destructive Syphilitic Lesions of the Skin, Subcutaneous Tissue, and Mucous Membrane to those of the Earlier Secondary Types, with an interesting discussion on Syphilis, brought the proceedings of the skin portion of the section to a close.

In the proceedings relating to x rays and radiotherapy, Dr. CLENDINNEN showed lantern slides of Various Diseases—e.g., osteo-sarcoma, osteo-myelitis, ostitis, dactylitis, arthritis, syphilis of the joints, traumatic atrophy of the joints, myositis ossificans—and also coloured slides of cases before and after x ray treatment, comprising epithelioma, rodent ulcer, nævi, lupus vulgaris, and lupus erythematosus treated by radium and x rays; as well as a case of alopecia areata successfully dealt with by ultra-violet rays. He also demonstrated Oscillography and the Oscilloscope, showing how the current was rectified by the Billard tubes and by the intervention of a spark gap in the secondary. Mr. HERMAN LAWRENCE exhibited *moulages* of some Rare Skin Affections—e.g., cylindroma and colloid degeneration of the skin. The patient in the first case was covered about the head with tumours varying in size from that of a filbert to that of a tomato. Microscopically they had an alveolar epitheliomatous structure. The colloid degeneration occurred in a man on the back of whose hands were lemon-coloured, waxy, semi-translucent papules closely aggregated. There were a few similar papules on the cheeks. Mr. Lawrence also showed results of treatment by liquid air, carbonic snow, radium, and Finsen light. Dr. HARRIS read a paper on Urinary Roentgenography and exhibited 50 skiagrams. The main points were the necessity of including the whole urinary tract in every case and the difficulty in correct interpretation. "Blotches" of various kinds were shown simulating calculi and the question of their differentiation was dealt with. Some of these were due to calcareous deposits in the vesiculæ seminales. Dr. Harris also read a paper on Roentgenography in Bone Diseases and exhibited some specimens of Plastic Roentenography. Dr. STANLEY ARGYLE read a paper on the Value of X Rays in Thoracic Diagnosis. No definite opinion was possible apart from a full consideration of the clinical history. Both screen and picture should be used in doubtful cases. A routine should be followed in every case. The heart was frequently smaller than normal in phthisical patients. Saccular aneurysms could be easily demonstrated but fusiform were less obvious. He showed lantern slides of early phthisis, calcification of healed lung lesions, fibrosis, collapse of lung, hydatids, and abscess, and pleurisy with effusion. Dr. ARGYLE also read a paper on Ions and Electrons and considered the treatment of rodent ulcer by zinc ionisation to be full of promise.

In the Section of Anatomy and Physiology a number of papers of scientific interest and importance were read by Professor WILSON (Sydney), Professor R. J. A. BERRY (Melbourne), Professor W. A. OSBORNE (Melbourne), and others.

The Section of Pathology and Bacteriology was fully attended and the papers were of a very high standard. An original investigation on the Serum Diagnosis of Syphilis was contributed by Dr. HILLER (Melbourne).

Numerous demonstrations were also arranged at the various hospitals of the city during the week of the Congress.

The following motions were adopted in full Congress:—

A. Hospital Abuse.

1. Proposed by Dr. R. WORRALL (Sydney) and seconded by Dr. H. SWIFT (Adelaide):—

That in the opinion of this Congress no payment whatever should be taken from patients treated at hospitals maintained by the donations of the charitable and by Government grants.

2. Proposed by Mr. G. H. BUTLER (Hobart) and seconded by Dr. CLARENCE REID (New South Wales):—

That, except in cases of accident or emergency, every patient should, before being treated, be required to sign a declaration of inability to pay for medical attendance; and that as far as possible all patients seeking treatment should bring a recommendation from their own medical attendant, whether lodge or other.

3. Proposed by Dr. JOHN THOMSON (Brisbane) and seconded by Dr. W. ANSTEY GILES (Adelaide):—

That this Congress affirms the foregoing resolutions as the foundation of any real reform in the present abuse of hospitals and is of opinion that other hospital accommodation would extend naturally to the inclusion of all those able to pay for medical treatment.

4. Proposed by Mr. G. A. SYME (Melbourne) for Dr. W. CHISHOLM (Sydney), and seconded by Mr. G. CUSCADEN (Melbourne):—

That this Congress is of opinion that it would be a great gain to the community if an executive body were established to (*a*) administer the Government grant; (*b*) classify hospitals; (*c*) prevent overlapping of hospital work; (*d*) insist on inquiry for the prevention of imposition; (*e*) insist on the adoption of uniform methods of keeping accounts; (*f*) close unnecessary hospitals; (*g*) prevent the establishment of unnecessary hospitals; (*h*) foster economy in hospital administration; and (*i*) promote the transfer of patients from one class of hospital to another.

The following further motions dealing with hospital abuse were adopted at the final general meeting of the Congress:—

(1) That the resolutions in reference to the abuse of hospitals be forwarded to all the recognised medical societies in all the States and in New Zealand; and that the societies be asked to take whatever action they may deem advisable.

(2) That a committee be formed to act with the next executive committee in dealing with questions of hospital management and to report through the executive committee to the next meeting of Congress, the committee to be: Drs. Worrall and Blackburn (N.S.W.); Lockhart Gibson and McLean (Q.); Hayward and Cavenagh Mainwaring (S.A.); Butler and Pardey (Tas.); Lewers, Moore, and J. W. Barrett (Vic.); Seed, Holland, and Saw (W.A.); Robertson and Ewart (N.Z.).

B. Contract-practice Abuse.

On the motion of Dr. A. A. PALMER (Sydney), for Dr. J. ADAM DICK (Randwick), seconded by Dr. SANDES (Sydney), the Congress resolved:—

1. That no medical man should pass for admission into any friendly society, lodge, club, or association, or private list, for professional attendance at contract rates of remuneration, any person whose income from all sources, together with that of his wife (if any), exceeds the sum of £4 per week—that is, £208 per annum. Further, no medical man should attend professionally at contract rates any member of any of the above-mentioned organisations whose income from all sources, together with that of his wife (if any), exceeds the sum of £6 per week—that is, £312 per annum.

2. That the general secretary communicate with all the medical associations throughout Australasia in order to bring into operation the foregoing resolution.

3. That, owing to the importance of this subject to the medical profession, the executive committee of the next session of Congress be requested to present a brief report to Congress upon the state and conditions of contract practice and to take such further action as it may deem advisable.

C. Concerning Syphilis.

The Congress resolved:—

1. That syphilis is responsible for enormous injury to mankind and that restrictive and remedial measures directed against it deserve the most serious consideration.

2. That documents should be forwarded to the executive committee of the next Congress with a request that action should be taken: (*a*) on the resolutions of the Section of Neurology and Psychiatry asking that a committee be appointed to investigate, tabulate, and report facts in regard to syphilis; and (*b*) on the resolution of the Section for Diseases of Children asking that a committee be appointed to draw up a short authoritative statement to be distributed among young men; to print and distribute the same; to watch effects and report to the next session.

D. Medical Statistics.

The Congress resolved:—

That a form of death certificate which would facilitate uniform specific certification of the causes of death is most desirable, and any such certificate should be forwarded direct to the local registrar of deaths who should issue a burial certificate.

E. Medical Inspection of School Children.

The Congress adopted the following resolution, submitted by the Section of Public Health and State Medicine:—

That the Congress be informed that the section is of opinion that there is evidence to show the prevalence of physical defects among school children, interfering with their health and education, and it is therefore recommended that the responsible authorities in New Zealand and in those States which have not instituted a system of medical inspection should be urged to adopt some uniform system of physical examination of all school children, carried out under the direction of and where necessary by medical experts.

The Congress also adopted the following resolution of the Section of Diseases of the Eye, Ear, and Throat:—

That the Eye and Ear Section desires to recommend to the Congress the extreme importance of the medical inspection and examination of school children, and especially urges the systematic examination of their vision and hearing.

F. Interstate Sanitary Conferences.

The Congress adopted the following resolution, submitted by the Section of Public Health and State Medicine:—

As recommended by previous Congresses, there is a pressing necessity for regular annual conferences between the professional heads of the State Departments of Public Health in Australasia, in order to secure, in the public interest, better coördination of hygienic effort with better coöperation in its application.

G. Radiotherapy.

The Congress adopted the following resolutions submitted by the Section of Diseases of the Skin, Radiotherapy, &c.:—

1. That the various health authorities and hospital committees be recommended to take the necessary steps to insure that adequate protection is provided for x ray workers at the hospitals throughout the Commonwealth.

2. That this Congress strongly impresses on the profession the advisability of consulting only qualified medical men for its x ray work.

H. A Medical Member on Naval and Military Boards.

The Congress adopted the following resolution submitted by the Section of Naval and Military Medicine and Surgery:—

That in the opinion of this section it is in the highest degree desirable for all naval and military boards or councils of defence to have an expert medical member.

THE SOCIAL SIDE.

The social side of the Congress was a pronounced success notwithstanding that the weather was unduly cold and boisterous for the time of year. On Monday, Oct. 19th, Mr. and Mrs. G. A. Syme entertained members of the Congress at a garden party in the beautiful grounds of "Blythswood," which overlook a pretty bend in the river Yarra. On the 20th Mrs. J. F. Payne received the members at "Maritimo," and albeit the afternoon was blusterous and cold a very pleasant gathering resulted. On the 21st Mr. and Mrs. R. Harper were at home to members at "Myoora," one of the most lovely of Melbourne houses, and in the evening a most successful dinner was held in the town-hall at which more that 500 guests were present. His Excellency Sir T. Gibson-Carmichael presided, and the proceedings were marked with great spirit. On the 22nd a very brilliant ball was given by the Victorian officers of the Australian Army Medical Corps, at which the many uniforms lent additional charm to the scene. On the 23rd the President and Mrs. Allen received the members in the university grounds which were brilliantly illuminated for the occasion. On the 24th visitors to Melbourne were at last rewarded with a perfect spring day for "Henley-on-Yarra," at which there was a Congress house-boat. This fixture has developed into a remarkable sight which no other Australian capital can emulate and it formed a fitting conclusion to a pleasant week. Those who were able to remain over the week end were present on the 26th at an evening reception given in State Parliament House by Sir Henry and Lady Wrixon.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University.

THE returns of the entries for the present term are now to hand and show that the total is 210 as contrasted with 201 for 1907–08. There has been a slight decrease in the departments of engineering, mining, and metallurgy, but this is more than compensated for by the increased entry in the medical faculty; and the increase in the latter faculty was not limited only to increase of full-course students but includes also an increase of occasional students, particularly in the public health department. The falling off in the technical departments is no doubt due, in part if not wholly, to the increased standard of preliminary education in mathematics which is now required, and it is noticeable that whilst the increased standard has resulted in a diminution in the number of the students it has also produced a distinctly better average capacity of the classes. It is possible also that the increase in the amount of the fees, which came into operation last session, has had some effect upon the entry in the technical departments.

Road Dust.

During the last two years many of our macadam roads have been sprayed with tar during the early summer, and the people who live along the roads have fully appreciated the results obtained. Not only is the dust greatly reduced but roads remain comparatively free from mud well into the winter, and there can be no doubt that the improved conditions are conducive to health. It is pleasant, therefore, to find, from some remarks made in a recent lecture by the city engineer (Mr. H. E. Stilgoe), that the cost of tar spraying, which amounts to ½*d.* per square yard, is more than recouped by the greater life of roads so treated and the diminished cartage of mud. Mr. Stilgoe stated that two coats of tar would give at least six months' wear. It is not often that city improvements are obtained without increased expense, but apparently this time we may congratulate ourselves upon getting better conditions and saving money at the same time.

The Midland Re-afforesting Society.

In referring to the recent report of the Royal Commission on afforestation Mr. P. E. Martineau, the organising secretary of the Midland Society, gave some interesting details of the work done and to be done in the Midland district. It is estimated that there are over 30,000 acres of waste ground in this district, of which 14,000 acres are fit for planting now. Only a very small part of this large area has been planted, and of the planted area a small portion belongs to the association. About a similar area is the property of public bodies, but the larger part has been planted under contract for private owners. Mr. Martineau pointed

out that the main question from the public point of view was the æsthetic, including, no doubt, the influence of improved æsthetic conditions upon the inhabitants of the district, but limited companies will not plant 14,000 acres on æsthetic principles. Fortunately, however, if Mr. Martineau's forecast is correct, they can be induced to do so upon commercial principles, and upon commercial principles he hopes to get the whole available 14,000 acres planted. Mr. Martineau is of the opinion that it is improbable that the Black Country will be dealt with by any big scheme. The dreary, desolate land is not left in its present condition either from carelessness or idleness but because a coal seam has been worked out and the land must settle before more works can be done. It cannot be built upon because of the settling; it cannot be cultivated because it is too uneven in contour, but it can be planted, for the gradual settling is not detrimental to trees which promise to be profitable property in about 25 years after planting and very valuable from an æsthetic point of view long before they become actually profitable.

The Medical Inspection of School Children in West Bromwich

The system which Dr. J. H. H. Manley has adopted will eventually enable him and his successors to trace the history of every child from his birth to the end of his school life, but in the meantime that is impossible and the results embodied in Dr. Manley's first annual report do not deviate materially from those given in the interim report presented in July last and then referred to in these pages. In his annual report, however, Dr. Manley expresses opinions of general interest and worthy of record regarding a number of problems with which his new duties have brought him into contact. Dealing with the question of allowing children under five years to go to school, he states that in West Bromwich no considerable numbers of women are employed in factories nor do they act as charwomen when trade is good and the men can get regular work; he believes, therefore, that the exclusion from the schools of children under five years of age would inflict no hardship upon the mothers and, in many cases, it would be an advantage for the children. With this opinion the majority of people who understand children and know the rules to which they must necessarily be subjected in school will be in cordial agreement. Another of Dr. Manley's opinions with which most people will agree is that it would be better if the children in the higher standards were taught the simple rules of hygiene instead of the Wars of the Roses and the races and religions of British India. The neglect of the teeth and the verminous condition of the heads to which he repeatedly draws attention have no doubt contributed to this opinion. If he would make inquiries amongst many of the candidates for teaching posts he would probably find that they are almost as ignorant of the necessity of personal cleanliness as the scholars they hope to teach; this, however, is a matter which will gradually be put right by the efforts of the training colleges.

Health Reports.

The last quarterly report of the medical officer of health of Birmingham (Dr. J. Robertson) was a record of a very satisfactory condition of affairs so far as general health and death-rate were concerned, but it was far from satisfactory with regard to birth-rate. The death-rate was 14·5 per 1000, the lowest yet recorded for Birmingham in the fourth quarter of the year. The zymotic death-rate was also the lowest yet recorded in the fourth quarter, 1·43 per 1000; and the infantile mortality rate was 145 per 1000, as compared with 184 in the last quarter of 1907. Unfortunately, the birth-rate, 26·4 per 1000, was also the lowest yet recorded in any quarter. The quarter ended on Jan. 2nd and in the week ending Jan. 9th the death-rate was 18·9 per 1000 and the number of deaths from measles was eight; by the end of the following week, Jan. 16th, the death-rate had fallen to 16·4 per 1000 and the number of deaths from measles had risen to 15. During the week ending Jan. 23rd the death-rate rose to 17·7 per 1000 and the number of deaths from measles was 20. This is the highest record of deaths from measles for two years, and it seems possible that we are at the commencement of an outbreak of measles of a somewhat severe type. Unfortunately the disease is not compulsorily notifiable and there is, therefore, no means of knowing how widespread it has become, but it is known to be present in every ward of the city and it is most prevalent on the east side.—Dr. J. Scott Wilson's annual report of the health of Walsall during the year 1908 is based upon an estimated population of 99,778. It shows a birth-rate of 29·54 per 1000, as contrasted with 33·10 for the last ten years, and a death-rate of 14·78, contrasted with an average of 17·29 for the last ten years. The infantile mortality rate was 147·80 per 1000, showing a definite diminution from the average of 164·99 for the preceding ten years.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Nurses and the Working Classes.

EVERYONE knows what self-devotion the nurses of these days display in carrying out their invaluable services even when they must be trying and distasteful. There are still, however, occasional exceptions, for even nurses are not all perfect, and among the working classes there exists a rather widespread feeling that they may be all very well for the "upper" and "middle classes," but are not well adapted for nursing in a working man's family. This feeling is illustrated by statements which were made at the annual meeting of the friends and supporters of the Otley Nurses' Home which was held on Jan. 23rd. It seems that the collecting boxes placed in the workshops and factories in the town had in many cases yielded very poor results, for one of them at the end of the year was empty, another contained a penny, and a third "a decrepit trousers button." A late chairman of the Otley council said: "The idea was abroad in the town that the nurses were for the upper and middle classes only. The working classes had expressed the opinion that the nurses required so much waiting upon that the families of patients could do better without them than with them." A lady pointed out that "the nurses could not be expected to perform household duties." This is the difficulty to be solved. In a labourer's dwelling, with the wife ill in bed, the husband obliged to go to his work, and the children to be fed and sent to school, or sent without being fed, and no neighbour's wife available who will look in and help, what is to be done? The nurse's time and strength ought not to be expended on house work, not because some might call it derogatory but because it would hinder the performance of her own special and most important duties. No doubt many nurses do come to the help of those in such trouble but it should not be necessary. It is perhaps worth suggesting that in some cases a charwoman whose services should only be used where actually needed might be added to the staff or be specially retained. There is no doubt that this prejudice about nurses being troublesome and exacting exists and unhappily there is occasionally some reason for it, but it would be a serious misfortune if the valuable services of the nurse should be lost to those who so much need them through the want of a little help in looking after the household.

Visit to the New Infirmary.

On Jan. 22nd an interesting occurrence took place at the New Infirmary. A large gathering of the members of the Royal Sanitary Institute was taken through it by the architects, Messrs. E. T. Hall, V.P.R.I.B.A., and John Brooke, F.R.I.B.A., and in the evening a discussion took place on the Manchester Royal Infirmary from the Hygienic, Sanatory, and Æsthetic Points of View. Mr. Hall gave a detailed description of the plan and equipment, laying stress on the hygienic, sanitary, and æsthetic features of the new building, and pointing out the excellent provision for air circulation throughout the institution. There is not a single inclosed area in the whole of the hospital, thus contrasting very favourably with the wells of stagnant air often found in commercial buildings. One statement, that some perhaps were scarcely prepared for, was that the infirmary when full would not provide for more than about 70 persons per acre. When speaking of ventilation Mr. Hall said a good word incidentally for Manchester air, that it generally is practically pure, "containing about 5 parts per 10,000 of CO_2, as against 3 parts in the mountain wilds of Scotland." The main wards are parallelograms, giving 130 feet of floor area and about 1800 cubic feet to each bed. The ratio of window to floor area is 1 to 4. With

regard to provision for future extension; Mr. William Thorburn said it was a question that must be left to a future generation. As it is, the 13 acres of the site are already quite sufficiently covered by the present buildings. If, and when, serious extension is called for it may be better to build on another site than to overcrowd the present area. Dr. J. Niven and other speakers emphasised the excellence of the institution and paid a tribute to the work of the architects.

Anthrax in Cheshire.

An inquest was held in Chester on Jan. 20th on a man, aged 49 years, who was employed as a warehouseman by a firm of brushmakers. He went home from his work on the evening of the 16th, with a swelling under the left jaw, and died the next day before he was seen by a medical man. During the post-mortem examination evidences of anthrax were found and two medical men gave evidence to the effect that he had died from anthrax. The coroner spoke of the importance of the inquest in this case in its bearing on the public health of the city, and it was adjourned to allow of the attendance of a Government factory inspector. In face of the repeated outbreaks of anthrax, due to the importation of hides, hair, wool, or bristles from over the seas, and seeing that even with the most careful examination the germs of anthrax may escape detection, the question arises whether such articles should not all be subjected to thorough disinfection before being dispersed through the country. The success of this scheme would, of course, depend on the complete destruction of the germs, but this must be left to the experts. This proceeding might cause some inconvenience, which would be met, on the other hand, by the protection to the health and life of those who work—i.e., whose means of living expcses them to the risk of life as matters stand at present. Few, it is to be hoped, would consider this inconvenience as of more importance than the saving of life that it would bring about.

Infant Life Protection.

Those interested in safeguarding the lives of infants and young children are looking forward to the new Infant Life Protection Act, which will come into force on April 1st, as giving increased safety to those who are unable to help themselves. Miss Zanetti, the inspector for the Chorlton union under the present Act, in her annual report points out that "one-child" cases, which now often escape inspection, will be brought into line with the others. She says that during the past year 21 cases, comprising 52 children, came within the Act. In addition she visited 23 cases, comprising 27 children, which were outside the purview of the Act, 20 being "one-child" cases. Of those within the Act the standard has been very good, only three being unsatisfactory. In two of the other cases the nurses had deteriorated, one from age and the other from drink. In another case where three children were under the care of a man and his wife, who evidently were dependent on the money paid for them, the children being ill-cared for the licence was withdrawn. It seems clear that this system of boarding out these young children requires very careful supervision, the character and qualifications of the foster mothers being all-important. In another direction, also, is the new Act looked forward to hopefully. Mr. Ferns, the coroner for Stockport, at the close of an inquest on one of the familiar cases of a child burnt to death, so familiar that there is a danger of their escaping notice, drew attention to the clause in the Act which provides that "if a child is killed or injured through being in a room containing a fire without a fireguard, the person responsible shall, apart from the liability to be proceeded against by indictment for an indictable offence, be liable on summary conviction to a fine of £10." He hoped the clause would make parents and guardians alive to a sense of their responsibility.

Cheshire Workmen's Hospital Fund.

Cheshire workmen show a good example in the support which they give to the Victoria Infirmary, Northwich. The balance-sheet of the Northwich working men's hospital committee shows that a sum of £270 will be handed over to the Victoria Infirmary. It has been collected in the face of trade depression and the loss of several large subscribers. The total receipts were £328. This gift of £270 is the largest recorded in the history of the committee. Sub-committees are found in every village of Mid-Cheshire, and in the last 20 years several thousand pounds have been raised.

Droylsden's Medical Officer.

The medical officership of Droylsden has been resigned by Dr. Andrew Gellatly after 25 years' service, and it is pleasant to know that his services have been appreciated and that the district council has decided to make a public testimonial to him before he leaves the district for Scotland. Dr. Gellatly has also held the position of factory inspector for Droylsden and Openshaw and that of Poor-law medical officer for Droylsden, under the Ashton board of guardians, for 28 years, until quite recently, when he resigned these appointments also.

Jan. 26th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

The Aberystwith Town Council and an Isolation Hospital.

AT a meeting of the Aberystwith town council held on Jan. 20th the medical officer of health reported some cases of scarlet fever, one of which had terminated fatally, and stated that an isolation hospital was greatly needed. A letter was also read from the Local Government Board inquiring what steps were being taken to provide an infectious diseases hospital for the town. Eventually it was decided to inform the Local Government Board that for the past five years the council had endeavoured to secure a site for a hospital but without success, and the matter was still receiving its attention. The Aberystwith town council should really take energetic means to procure an isolation hospital for the popular watering-place.

A Munificent Present.

Sir John Williams, Bart., M.D. Lond., has presented his large collection of books and MSS. to the Welsh National Library at Aberystwith. The number of volumes is about 20,000 and includes a large number of very valuable MSS. and extremely rare books.

Hereford Coöperative Housing Scheme.

At a large public meeting held in Hereford on Jan. 19th Councillor J. S. Nettlefold of Birmingham delivered an address which inaugurated a housing scheme that appears to embody all the best features of coöperation. The corporation has purchased an estate close to the railway station and is now constructing the necessary roads and sewers; a joint-stock company has leased the estate, with an option of purchase, from the corporation at a sum which will necessitate no call on the rates; the company will erect cottage dwellings to tenants who take from one to three £1 shares in the undertaking; and finally, a certain proportion of the capital will be borrowed from the Public Works Loans Commissioners. After paying a maximum rate of interest of 4 per cent. on local stock and 5 per cent. on ordinary stock the profits will go towards paying off non-tenant shareholders and will be divided among those who are tenants. It is anticipated that in this way the tenants will feel that they have a very direct interest in keeping the houses in good condition. The need for more workmen's houses in the town is apparent from a representation which was made to the Local Government Board last year, in which it was stated that there were no less than 156 houses which were not fit for habitation, and that in February last there was in the whole town only one cottage vacant at a rental below 5*s.* per week. In order to prevent overcrowding of houses on a given area it is proposed to limit the number of houses on the new site to 12 per acre and the dwellings will be of varying size, so that there will not be a collecting together of the same class of tenant. This is not the first scheme of its kind for the improvement of housing conditions which has been promoted in Hereford, for some six years ago a Dwellings Company erected 24 houses at a cost of about £4000. They are let at rentals varying from 2*s.* 9*d.* to 5*s.* weekly and there has hardly ever been one unoccupied. About the same time the corporation cleared away 32 dilapidated, overcrowded, and insanitary houses in the middle of the town and erected on the site 21 cottages. These, too, are always in constant occupation.

The Effect of the Pensions Act on Pauperism.

At a recent meeting of the Dursley (Gloucestershire) board of guardians Mr. E. B. Wethered, one of the Poor-law inspectors of the Local Government Board, stated that in Gloucestershire during the tenth week of the Christmas quarter there was a decrease of 505 recipients for out-relief, a circumstance which he attributed to the Old Age Pensions Act. On the other hand, there was an increase of 164 in the admissions to the workhouses. He considered that this was due not so much to able-bodied persons seeking admission as to the Workmen's Compensation Act which led employers to engage only the services of the most capable workers.

A Hospital for Aberavon.

There is in the town of Aberavon and the adjoining districts a population of about 20,000 persons and the need for a cottage hospital is being increasingly felt. The project for establishing such an institution has received some encouragement by the offer of Miss Talbot to contribute £500 to the building fund. Two years ago Miss Talbot gave £5000 towards the cost of a comprehensive sewerage scheme in the neighbouring district of Margam, and in 1895 she lent to the Margam district council the sum of £3200 free of interest for a period of 40 years for the purpose of erecting an isolation hospital upon land which she gave to the council. The sanction of the Local Government Board was not sought before the loan was effected and less costly buildings were erected than would have been the case had the intervention of the central authority been necessary. The amount thus saved to the ratepayers was said at the time to be about equal to a rate of 1½*d.* in the £.

The Training of Colliers as Rescuers.

In connexion with every colliery disaster which involves the imprisonment of the colliers in the workings there is never lacking one satisfactory feature. The number of volunteers who are willing to undertake the task of rescue invariably exceeds the requirements. But the experience gained by these rescue parties, together with the increasing number of scientific appliances which have been devised to lessen the dangers involved, has led colliery managers to realise that something more than mere willingness to assist is necessary if the greatest amount of good is to be achieved. A very large number of colliers are already trained in the application of first-aid to those who have been rescued, and a further step has now been taken by several colliery owners in the Aberdare Valley by the provision of a rescue station in which men employed below ground as well as others will be trained in the use of various forms of rescuing apparatus. The buildings of the station include one which has been constructed in the form of an underground working, and in this the necessary instruction will be given in a thoroughly practical manner by a trained instructor. The excellent example which has been set in the Aberdare Valley will no doubt be followed elsewhere, for it is distinctly on right lines.

Jan. 26th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Royal Infirmary.

AT an adjourned general meeting of the court of contributors of the Edinburgh Royal Infirmary there was a somewhat warm discussion with reference, in the first place, to the notices in the annual reports of the deficiencies in the ordinary income and, in the second place, to the infirmary being used by people able to pay for medical and surgical attention. The assumption was that if the institution were not thus taken advantage of the deficiencies would not be so great. The chairman, Lord Skerrington, in his remarks expressed what those who know the working of the hospital best have long held. He said that if it were proposed to have "paying patients" he entirely disagreed with the suggestion. He did not doubt that in the infirmary, as in all similar places, there were individual instances of persons taking advantage of the benefit of the institution when they might afford to be treated in some other place. The only alternative to this was to institute an inquisitorial system which would be most offensive to the whole spirit of our times and our country and which would lead to much graver and larger abuses than anything from which they at present suffered. He thought it would be a very grievous misfortune if, through misplaced ideas of economy, they attempted to limit the expenditure in any matter which was necessary for the well-being of the institution, and considered that it was the duty of the people of Edinburgh and of Scotland to see to it that the annual ordinary income met the ordinary expenditure.

The Lord Rector at the University of Edinburgh.

The Right Honourable George Wyndham, M.P., the recently elected Lord Rector, paid a visit to the University of Edinburgh on Jan. 21st. He was accompanied by his wife the Countess Grosvenor. His engagements began with a luncheon in the University Union given by Mr. James Walker, C.A., treasurer of the union and the Lord Rector's assessor on the University Court. After the luncheon Lady Grosvenor visited the Women Students' Union, while Mr. Wyndham was received by the Students' Representative Council, to which he was introduced by Principal Sir William Turner. A reception was held immediately after in the Senate Hall by the Principal, and after this Mr. Wyndham and Lady Grosvenor attended a concert in the debating hall of the union. In the evening Mr. Wyndham was entertained to dinner by the University Conservative Association.

Edinburgh University Court.

At a meeting of the Edinburgh University Court held on Jan. 18th formal notice was taken of the bequest made by the late Dr. Thomas McKie, Advocate, to the University, who left the residue of his estate, subject to the life rent of his widow, to develop and encourage scientific, medical, and surgical research, the teaching and study of the English language and literature, and the teaching and study of modern languages in the University. A number of additional examiners in the Faculty of Medicine were appointed —namely, Professor Arthur Thomson (Oxford), anatomy; Professor John B. Haycraft (Cardiff), physiology; Professor J. M. Beattie (Sheffield), pathology; Dr. William Fordyce (Edinburgh), midwifery; and Dr. William Russell (Edinburgh), clinical medicine.

The Professor of Surgery.

Owing to the ill-health of Professor J. Chiene he has been allowed leave of absence from his professorial and infirmary duties. Mr. David Wallace is to lecture for him in systematic surgery and Mr. H. Alexis Thomson will take his infirmary work and clinical teaching.

Matriculated Medical Students at the Universities of Glasgow and Edinburgh.

An interesting table has just been issued by the University authorities of Edinburgh and Glasgow dealing with the numbers of matriculated students at the two universities during the last 20 years. At Edinburgh in the year 1889 there were 2025 medical students, while in Glasgow there were 818. In the year 1908, on the other hand, there matriculated in Edinburgh 1431 students, and in Glasgow 605. Thus there has been in both universities a distinct falling off in the number of medical students. This diminution has gradually gone on up to about five years ago, when a slight increase appeared in the numbers, apparently due to the Carnegie Fund, by which students are helped in the fees. It must be noted, however, that the decrease is at least in part due to the fact that the Faculty of Science was only instituted in the year 1893 in both universities, and that up to that time students wishing to study scientific subjects, such as zoology, botany, and chemistry, were matriculated as medical students, although not intending to graduate or to follow out a medical career. This explanation, on the other hand, is only partial, as all the faculties (arts, divinity, law, and medicine, with the exception of science) have shown a steady fall in the number of students during the last 20 years. Thus, in the University of Edinburgh in 1908 the total number of matriculated students in all the faculties was 2733, as compared with 3602 in 1889, and in Glasgow the number in 1908 was 1922, as compared with 2101. Had it not been for the institution of the faculty of science, attracting a large number of students especially in engineering science and kindred subjects, the falling off in numbers would have been much greater.

The Supply of Antitoxin.

At Kirkcaldy district committee (Fife county council) recently the question was raised of supplying diphtheria antitoxin free of charge to poor patients residing in the burghs connected with the hospital combination. Dr. T. F. Dewar, the medical officer, gave it as his opinion that it was unusual to supply antitoxin to patients who were being treated at home. On the other hand, it was pointed out that it would be an advantage to supply antitoxin in urgent cases where the patient was to be removed to hospital, so that the patient could get the benefit of the antitoxin at the earliest possible moment. In the end it was agreed to supply antitoxin in cases which were reported to be necessitous by the medical men in attendance.

A Medical Research Prize.

The "John Reid" prize, the competition for which is open to registered students of medicine of not less than two years' standing and to qualified men of not more than two years' standing who are still attached to one of the medical schools as *bonâ fide* students, has been awarded by the trustees to Mr. G. Haswell Wilson, M.B., Ch.B., of the University of Glasgow. Dr. Wilson's thesis is entitled "The Application of the Biological Test to the Detection of Albuminous Substances in the Urine." The research work for this paper was conducted in the pathological laboratory of the University of Glasgow.

Burial Reform.

At the sixteenth annual meeting of the Scottish Burial Reform and Cremation Society, Limited, lately held, the report showed that during the last three years 110 cremations had taken place, as compared with 86 during the preceding three years. It was suggested at the meeting that the time had now come for the municipal authorities and parish councils, who had to deal with large numbers of bodies, to adopt the Cremation Act and to institute cremation at the public expense.

Suppression of Consumption.

Hitherto the crusade against consumption has been conducted in this country principally by medical men and the municipal authorities and parish councils directly interested in public health. A new phase in the movement has recently been initiated for the West of Scotland when a conference of 600 delegates from Glasgow and district friendly societies, trade unions, coöperative societies, and other bodies took place to consider the question of the suppression of tuberculosis. Addresses were given by Dr. A. K. Chalmers, medical officer of health of Glasgow, on Consumption as a Social Problem; by the permanent secretary of the Ancient Order of Foresters on Tuberculosis as a Workman's Question: its Economic and Humanitarian Aspects; and by another delegate on the German Insurance Laws and their Relation to the Crusade Against Consumption. When the question is apparently being seriously considered by societies which are undoubtedly representative of a large section of the community it gives reason for hope that the stamping out of this disease is within measurable distance.

The Question of the Dundee Sanatorium.

Mr. A. F. Burke, convener of the public health committee, and Dr. C. Templeman, the medical officer of health, have issued a report in which they state that it has become urgent that the town council of Dundee should take into consideration the advisability of putting into operation a system of compulsory notification and of making provision, by means of a sanatorium, for the isolation of advanced cases and curative treatment of early cases of pulmonary phthisis. An easy opportunity was believed to be available by taking over the Sidlaw Sanatorium and making certain additions thereto of, say, accommodation for 150 cases altogether, which it was thought would be the average number if the requirements of the situation were to be adequately met. With a view to ascertaining definitely the position of the directors of the Sidlaw Sanatorium certain overtures have been made to a representation of their number, and there is reason to believe that if the town council resolved to deal with this matter in a way that its importance required the directors of that institution would be willing to consider favourably a proposal to the effect that the present buildings of the sanatorium, with its furnishing and equipment, should be taken over free of cost to the council and that the proceeds of the endowment fund in connexion with the institution would be available for the treatment of paying cases when the institution was municipally administered. The Sidlaw Sanatorium buildings and furnishings cost £26,446 and the endowment fund amounts to £18,226. To accommodate 150 cases as proposed an additional £18,700 would be required, and the annual administrative cost would be £6319, involving an additional rate of 2*d.* in the £, apportioned equally on owner and occupier.

Jan. 26th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Research Defence Society.

TO-DAY, Wednesday, Jan. 27th, occurred the first anniversary of the founding of the Research Defence Society. The occasion was celebrated by the inaugural meeting of the Dublin branch of the society which was held in the theatre of the Royal Dublin Society. The meeting was a great success, 700 persons being present and 400 new members joining the branch. At this time last year the Research Defence Society had only seven members. It now has considerably over 2000. Mr. Stephen Paget, the honorary secretary of the society, has issued a most interesting report of the work of the year.

Longevity and Old Age Pensions.

The Old Age Pensions Act has had the effect of bringing into prominence many interesting physiological and social facts. Perhaps geological considerations are not without their special influence on the matter. The rugged soil of County Donegal has certainly furnished a conspicuous record of human longevity. The case of Bryan O'Donnell (of Inver) who applied at the age of 107 years, has received wide attention; but his fellow countryman, Patrick McCart (of Ballintra), has beaten his record—having been born in 1799. He, however, migrated to Strabane 60 years ago and has lived there since. He is the father of five children, of whom the youngest possesses the age qualification for a pension. Another case which conspicuously illustrates the inherited tendency to long life is worthy of notice. On Jan. 9th the remains of Miss O'Hagan of Lisburn, who had died at the age of 107 years, were interred in the Catholic cemetery at Hilltown. She had lived 97 years in the service of one family. Her mother had lived to 102 and her sister had more than achieved her century before death. Miss O'Hagan retained all her faculties to the last and was only ill for one week at the close. The discussion of the subject in relation to Donegal applicants has produced an official intimation to the Letterkenny board of guardians that "old age pensions are inalienable and cannot be taken by the guardians to pay for the cost of maintenance of pensioners in a workhouse infirmary." The rule will, of course, govern other similar cases throughout the country and it appears to be equally applicable to other charitable institutions.

Burning Fatalities to Children.

It is a painful fact that during the opening days of the new year a series of fatal burns occurred among the children of our Irish cities and larger towns. One of the most distressing was that of a boy in his fifth year who died last week in Dr. Steevens' Hospital. The child had been alone in a room when his clothes became ignited—his mother being then ill in bed. The attention of a woman who lived next door was attracted by his cries and running to his assistance she took him to a druggist's shop where some dressings were applied. He was thence conveyed to the hospital but never rallied from the shock, "his body, limbs, and face having been extensively burned." Although sympathy is due to the parents in these sad cases it must not be forgotten that in a fair proportion of them the accident is quite preventable and due to a lack of reasonable care. It is therefore gratifying to notice that under the new Act of Parliament a penalty is incurred by the negligent guardian of any child who is killed or seriously injured by exposure to domestic fires. The section was cited by the coroner at an inquest in Cork on Jan. 16th who took the opportunity of calling attention to the fact

that its operation will commence on April 1st. The wording is:—

If any person over the age of 16 years who has the custody, charge, or care of any child under the age of seven years allows that child to be in any room containing an open fire-grate not sufficiently protected to guard against the risk of the child being burnt or scalded without taking reasonable precautions against that risk, and by reason thereof the child is killed or suffers serious injury, he shall on summary conviction be liable to a fine not exceeding £10.

The Claremont Institution for the Education of the Deaf and Dumb.

The meeting of the Rathdown board of guardians which was held on Jan. 20th brought into prominence the progressive movement of educational methods in the Claremont Institution for the Deaf and Dumb. A letter was received from the Local Government Board in reference to the refusal of the guardians to send a deaf-and-dumb boy (of Bray) to this institution and their decision to send him to the Belfast Institution instead, "on the ground that in the former only the oral system was taught, while in the latter, with great advantage to pupils, the simpler and, for practical purposes, much more useful manual system was also taught." The letter forwarded by the Local Government Board pointed out that the guardians were under a misapprehension in this matter, as the Board was informed by its inspector that "the Claremont authorities were teaching both systems." One of the members expressed his gratification on hearing that the Claremont authorities had decided to teach both systems in future.

Portadown Town Council and the Milk Supply.

At a meeting of this council, held on Jan. 19th, the medical officer of health having reported several cow-keepers for not having complied with the Dairies Order, and several of the members having drawn attention to the dirty state of the milk brought from the country into Portadown for sale, it was decided to take action in the matter.

The Ulster Medical Society.

On the evening of Jan. 21st the president of the Ulster Medical Society, Dr. T. S. Kirk, entertained the Fellows and members at a smoking concert in the Belfast Medical Institute. On the ground floor of the Institute tea and coffee were provided and in the main lecture hall (where the concert took place) the audience afterwards assembled and spent a very pleasant evening.

Jan. 27th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Chairs of Surgery.

THE council of the Faculty of Medicine met on Jan. 16th to elect two professors for the vacant chairs of clinical and operative surgery in place of Professor Le Dentu who is retiring and of the late Professor Paul Berger respectively. There were three candidates for each post. The two whose names had been sent up to the Minister of Public Instruction were elected after two scrutinies, M. Hartmann being placed in the chair of operative surgery by 21 votes and M. Pierre Delbet in the chair of clinical surgery by 22 votes. M. Hartmann, who was born in 1860, has taught operative surgery nearly uninterruptedly for 25 years as demonstrator, prosector, professor *agrégé*, assistant-director of the classes in practical surgery, and surgeon to the hospitals. His writings on operative surgery and the surgery of the stomach have won him an established position. M. Pierre Delbet became an *agrégé* in 1892 and surgeon to the hospitals in 1893, and he has already made some important contributions to clinical surgery and experimental pathology. Several of his works, such as those on malignant tumours and their treatment, on arterial disease and on morbid processes, are recognised as authoritative.

Alopecia Areata.

At the Hospitals Medical Society on Jan. 15th M. Rousseau brought forward the results of an inquiry into alopecia upon which he has been engaged for two years on patients attending Dr. Jacquet's polyclinic by invitation of that gentleman. In 70 cases of the disease he found 25 to be of manifest dental origin. In 18 the alopecia developed in the month following the dental trouble and on the same side of the head as the latter. There seems to be an undoubted relationship between the sites of the bald patches and of the dental lesions. For instance, 16 out of 16 cases that followed irritation at the lower part of the jaw were localised in the occipital region. The author proceeded to mention the dental disturbances which are most likely to lead to alopecia; these include the eruption of the wisdom tooth (in 8 out of 25 cases) and alveolar periodontitis (in 11 out of 25). He supported these statements by quite convincing evidence and concluded by summing up the therapeutic results obtained in cases of alopecia by simple dental treatment. Of 22 cases thus treated and followed up 19 were cured and only three were failures. In 11 cases the benefit was immediate (from a week to a fortnight), in five cases it took from a fortnight to a month, and in three the improvement was slow, taking from two to three months. This inquiry gives new and strong support to M. Jacquet's theory of the disease.

Epithelioma Grafted upon the Scars of Old Burns.

M. Thiéry and M. Ricard at the Chirurgical Society on Jan. 13th showed a man and a woman with cancers growing on the old scars of burns. The first had cancer of the arm and thorax which appeared to be inoperable. The second, who had an even larger cancer, *en cuirasse*, extending right down to the abdomen and pelvis, had been operated upon by M. Ricard who had been able to fill in a huge gap resulting from the ablation of the growth by a plastic procedure which had given an excellent result.

The Treatment of Cancer by Fulguration.

At a meeting of the Medical Society of Paris on Jan. 23rd, under the presidency of M. Buret, M. Juge of Marseilles showed a series of patients whom he had treated for severe cancer by fulguration. In each case the growth had been removed very incompletely before the fulguration was applied, and in each this led to a rapid cure. At present their scars are perfect. One of these patients was a man who had had a complete cancerous ring around his mouth which had recurred three times after operation. His wound is now healing rapidly and his general state is excellent. He formerly suffered terrible pain but this distressing symptom was reported to have quite gone.

Jan. 26th.

SWITZERLAND.

(FROM OUR OWN CORRESPONDENT.)

Mortality Statistics for Tuberculosis and Cancer.

THE Swiss Statistical Office has published the ratio of mortality for tuberculosis and cancer for the five years 1902 to 1906. It is to be remarked that whereas in 15 cantons (districts) almost all the cases of deaths are medically certified, in six cantons only 95 to 98 per cent., in one canton only 93 per cent., and in three mountainous districts (Valais, Uri, Grisons) only 58 to 86 per cent. of deaths had a proper medical certificate. The death-rate of tuberculosis per 10,000 for the whole of Switzerland stood at 24·6, some cantons presenting a considerably smaller ratio (Valais, 15·2; Lucerne, 22·6; Thurgau, 23·9; Tessin, 24·5); others exceeding it (Zürich, 24·8; Neuchâtel, 25·3; Vaud, 26·1; Basle, 26·2; Berne, 27·7; Solothurn, 28·9; Glarus, 30·4; St. Gallen, 30·9; and Geneva, 37·8). The death-rate of cancer was calculated per 1000 inhabitants *over 40 years of age*. For the whole of Switzerland the ratio was 4·5 (Valais, 1·7; Grisons, 3·7; Berne, 3·9; Tessin, 2·8; Vaud, 4·1; Basle, 4·5; Zürich, 5·1; Lucerne, 5·9; and Zug, 6·8).

Notification of Tuberculosis.

The Swiss Central Committee for the Suppression of Tuberculosis has communicated the following resolution to the different cantonal sanitary authorities:—

All cases of death due to tuberculosis and also all so-called cases of "open" tuberculosis should be notified to the sanitary authorities, especially in cases of change of domicile.

The cantonal sanitary authorities can then take the necessary prophylactic steps such as disinfection, isolation, and improvement of the mode of living (with regard to medical attendance, ventilation, food, &c.).

Hæmorrhage from Compression of the Thorax.

Dr. E. Ruppanner, late assistant at the Surgical Clinique

in Basle, under the charge of Professor M. Wilms, reports four cases of extensive hæmorrhage caused by compression of the thorax. Two patients were crushed in a crowd during a fire panic, one was jammed in between a machine and a wall, and the last was dragged under a tramcar. All these cases recovered. Similar cases have been reported by Ollivier d'Angers in 1837 (crush in a crowd during the wedding festivities of the Duke of Orleans which led to 23 deaths) and by Tardieu in 1855 and 1866. Perthes in Leipsic again drew the attention of the medical world to such cases in 1899 and Dr. Anderwert at Professor Krönlein's Clinique in Zürich gave a *résumé* of 35 cases in his inaugural dissertation in 1906. The hæmorrhage appears on the chest, in the face, on the neck, and especially under the conjunctivæ, also in the fundus of the eye (followed by optic degeneration), and in the ear. The cyanosis of the face, which lasts for many hours or even days, is very characteristic.

Zürich, Jan. 21st.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

The Ventilation of Coal Mines.

SEVERAL accidents have occurred recently in coal mines in this country after a period of several years of security; these occurrences have given rise to an investigation into the present system of ventilation in force in the Austrian coal mines. The report of the committee ("Bergwerkscommission des Gesundheitsamtes") has now been published. Some of the facts recorded by it are very interesting. There are only two mines still without ventilating machinery, the work being done mainly in one shallow shaft without any side pits. All other mines have, and are bound to have, special ventilating plants. The amount of air pressed into the shaft rarely exceeds 10 cubic metres per second (the regulations require 1 per cent. of the air capacity of the shaft). Exhausters are present in nearly all mines. Their working capacity also rarely exceeds 5 per cent. of the entire air volume to be exhausted. The majority of coal-mine disasters have happened from neglect of instructions and generally from the uncovering of a Davy lamp in a dangerous atmosphere. A system of lighting the mines without any danger has not yet been evolved. The coincidence of explosions in mines and earthquakes has often been asserted but no positive proof has hitherto been offered.

Medical Practitioners in Austria.

According to the official figures, there were altogether 12,278 registered practitioners in Austria (not including Hungary) amongst a population of 28,000,000, or nearly 1 to every 2300 of the population, at the end of 1908. The increase over last year's figures was 230, or a little less than 2 per cent., which corresponds with the annual increase of the population. The majority are in German-speaking countries, as Vienna alone had 2946 (or 24 per cent.). The proportion of medical practitioners to the population varies greatly, but there is evidence that medical men tend to be scarce amongst the illiterate communities. There are only 72 men practising without the M.D. degree and they are all over 60 years of age. Since 1875 only fully qualified men have been registered and allowed to practise. In spite of the decreasing number of medical students the number of graduates is still increasing. The real effect of the diminished eagerness to adopt the medical career will not be manifest for another four or five years. On the other hand, the number of quacks who have been denounced or who have been otherwise brought to the knowledge of the legal authorities during 1908 is stated to be 600, but the number is certainly a higher one.

Studies on Acromegaly or Hypersecretion of the Hypophysis Cerebri.

At the same meeting Dr. Exner made a report from Professor Hochenegg's Clinic on a case of Acromegaly, which was demonstrated a few weeks ago. It was resolved to remove the supposed tumour of the hypophysis by the nasal route. The patient, a woman aged 38 years, had been suffering from headache, loss of appetite, and absence of menstruation for seven years. The eyesight became bad, so that the left eye grew quite blind one year ago, whilst the right eye showed a diminution of the field of vision. For three years the patient had had an excessive growth of hair on the inner side of the thighs and hypochondrium, and a moustache. The nose, lips, finger-tips, and chin have been growing for the last four years, and the voice has become coarse and deep. Professor Hochenegg removed the hypophysis tumour by means of a small incision over the sella Turcica big enough to admit a sharp spoon; the temporary resection of the nose had no bad cosmetic effect. The patient made an excellent recovery, except for one day of high temperature, caused probably by a small abscess at the root of the nose. The happy result perhaps is due to the very small incision in the dura mater and perhaps also to the method of drainage adopted. Iodoform wicks were used covered by rubber drainage tubes to keep the wicks away from the infectious nasal mucous contents. By a small spoon it is possible to remove as much of the tumour as can be removed by any other method yet suggested. A complete extirpation has not yet been performed. The results six weeks after the operation are very instructive and gratifying. The headache has disappeared; the circumference of the big toes and the fingers is less by about one-third of an inch. The hard hair of the moustache has fallen out, the newly formed hair on the other parts of the body has also disappeared, and the weight has increased by eight pounds. All these regressive changes have set in since the operation, and have been observed in a similar way in the other five cases operated on in the same way for the same reason—acromegaly. It is then legitimate to conclude that these symptoms of increased growth are due to a hypersecretion of the gland. On the other side, the intimate connexion between the pituitary body, thyroid gland, and ovary is also manifest in this case. Since the restitution of the normal balance between these organs a distinctly palpable median lobe of the thyroid has appeared for the first time. The renewal of the ovarian function is evident from the fact that the secondary female sexual characters have reappeared.

Jan. 25th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Hungarian Ships' Surgeons and the Cunard Line.

SINCE the passing of the Hungarian Emigration Bill (1903) the Cunard Company has been obliged to employ Hungarian surgeons on its passenger ships carrying Hungarian emigrants and sailing between Fiume and New York. During these five years the ships' surgeons have often published reports, complaints, and proposals both in professional and lay papers, but without any obvious results. Now they have comprised all these articles in a memorandum to Count Hadik, Secretary of State. Since up to the present Hungarian ship surgeons have been exposed to a despotic authority and have had no specified system of duties and privileges, they now ask that their position may be laid down by law, their duties precisely defined, and their status definitely improved. The Cunard Company does not appreciate the importance of its Hungarian surgeons, although the permanent presence of a surgeon knowing the language of hundreds of passengers is a necessity to the ships in question. The lack of appreciation has become the source of continual quarrels, complaints, and misunderstandings. While the post of even the English surgeons on the emigrant ships cannot be called very enviable either from a financial or from a social point of view, how much less desirable is the post of the Hungarian or foreign assistant surgeon. The leaders of this movement desire to enlist the sympathy of English medical men in their position and thus to persuade the Cunard Company to improve it for them. The memorandum to the Government contains, *inter alia*, the following petitions: 1. According to the Emigration Act, it shall be enforced that the attendance of Hungarian patients shall be confined exclusively to specially appointed Hungarian surgeons. 2. The control and inspection of drugs, medicines, dressing materials, and surgical instruments shall be within the official duty of the Hungarian

surgeon so far as Hungarian patients are concerned. He shall be entitled to give orders to the nursing staff and servants. The English surgeon, whose appointment is more permanent, shall be expected to help the Hungarian surgeon in every case in which he is asked to do so. If difficulties arise from defective knowledge of the English language then the nurse-interpreter's help shall be sought. 3. The Hungarian ship surgeon to hold equal rank with the English surgeon, to whom he shall not be a subordinate. His former title of "assistant surgeon" to be changed for "Hungarian surgeon" in accordance with his colleague's title of "English surgeon." The surgeons to rank with the first officer and their uniform (which is supplied by the company) to be identical. The Hungarian surgeon to receive a good, well-ventilated permanent cabin in accordance with his rank, and this room not to be given up for anybody in any circumstances. The cabins to be supplied with door-plates with the inscriptions "Magyar Orvos" and "English Surgeon." 4. The Hungarian surgeon to be regarded in every respect as a first-class passenger and his board to be in accordance with this. A steward speaking Hungarian to be allotted to attend on him. 5. The Hungarian surgeon not to be dismissed without an adequate reason. 6. His pay to be at least 10 crowns (8*s.* 4*d.*) per day, increasing with length of service. 7. The Hungarian surgeon to be allowed to ask proper fees for the treatment of first- and second-class passengers who are ill when they board the ship, or who become ill during the sea voyage, if their illness has no connexion with the sea journey. Finally, they request that a Hungarian cook shall be employed to the benefit of all Hungarians on board. The petition is signed by the leaders of the "Ships' Surgeons Movement."

Jan. 23rd.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

Violent Deaths in Montreal in 1908.

STATISTICS issued from the Montreal City Morgue show that during the year 1908 there were 850 deaths from violence in that city. Of these there were 23 deaths from foul play, ten of which were murders by Italians. There were 29 suicides, those by poison forming the majority, with fire-arms second, while the other means were razors and the rope. 19 people were asphyxiated by gas, while one person was registered as choked while laughing. 79 people were drowned in the St. Lawrence river, most of whom left no evidence to show how they got into the water. 50 people were killed by the railways and 22 by the street railway, all attributed to imprudence on the part of the victims. 15 deaths were caused by explosions, ten being at once by dynamite and one by the explosion of a barrel of whisky! Automobiles only killed two, while there was but one solitary death from hunting. There were 218 sudden deaths and 57 not certified to by physicians which had to be investigated by the coroner. One fireman was killed while on duty and 57 people were burned to death, while six were killed by scalding and two frozen to death.

Deporting Insane in Ontario.

The Ontario Government claims to have made a saving to the province of nearly $75,000 by deporting insane persons who have been confined in the various hospitals for the insane throughout the province. This party went across the Atlantic in December in charge of a special medical officer. It was the first consignment undertaken by the province of patients who do not come within the purview of the Immigration Act, that is, they had been in the country too long a time to be taken back free by the steamship companies which brought them over. The cost of deportation was about $1500, whereas the patients would have cost $4000 apiece to keep in the hospitals for the insane for the rest of their existence, this figure being based on the expectancy of life tables.

Suicides from Carbolic Acid in New Brunswick.

At its next meeting the New Brunswick Pharmaceutical Society will take up the matter of the sale of poisons, as there is a strong feeling amongst the druggists of the province, particularly in the cities and large towns, that something must be done to curtail the sales of poisons in view of the frequent cases of suicides from poisons, particularly carbolic acid. Carbolic acid being a household remedy largely used for cleaning purposes, druggists did not, as a rule, register the sales, although if the law were strictly observed druggists would not sell it except under a medical man's prescription. Druggists consider that medical men are to blame, as when called into a case after writing a prescription they told the public to get certain quantities for disinfecting purposes. The reason, therefore, why people got this acid so frequently for suicidal purposes was simply the ease with which it could be procured when they could get nothing else from the druggist.

The Death of Dr. W. J. McGuigan, Vancouver, B.C.

One of the pioneer physicians of British Columbia died there very recently after a lingering illness, at the age of 55 years. The late Dr. William Joseph McGuigan, Vancouver, B.C., was an Ontario farm boy, who graduated from McGill University, Montreal, with high honours in 1879. For a few years after graduation he practised his profession in Detroit, U.S.A., moving from that place to London, Ontario. In 1885 he was induced to go West and engaged as medical superintendent of the Canadian Pacific Railway when that pioneer transcontinental railway was pushing its way across the Rocky Mountains. In Vancouver he entered civil life and was appointed the first coroner for Vancouver, a position he held up to the time of his death. He was many times elected an alderman, and in the year 1904 was mayor of Vancouver, the year the Canadian Medical Association met for the first time in that city beyond the Rockies. He was then indefatigable in his exertions to provide entertainment for his visiting brother physicians from the East. He was a member of the Medical Council for 20 years and served many times as examiner and treasurer. In 1902 he was sent to San Francisco to confer with the medical authorities of that city on the best methods to pursue for the exclusion of the bubonic plague from the Pacific coast cities. His death was due to apoplexy.

The Growth and Needs of Toronto University.

Dr. R. A. Falconer, the recently appointed president of Toronto University, in the *University Monthly* sketches succinctly the growth and future needs of the University, over whose destinies he has been called upon to preside. Within a short time this University has become one of the largest in the British Empire. There are only eight larger in America—namely, Harvard, Chicago, Michigan, Cornell, Illinois, Pennsylvania, Columbia, and Minnesota. The expansion has been so rapid in recent years that the grounds will soon be fully built upon, and, indeed, there is now very little available space left. Owing to this fact the leases of certain properties belonging to the university have been acquired. A botanical and forestry department is in contemplation. The faculty of applied science is overcrowded and needs more building accommodation. A new thermodynamics and hydraulic laboratory is being erected adjacent to the engineering building and the governors have in view the replacing of a new building for the latter. Extension of the medical building in the near future is also contemplated, although much of the work of the laboratories may be conducted in the near future in the new Toronto General Hospital, which will face some of the University property on College-street. It is intended to expand the library building and plans have already been executed in this direction. A new Geodetic building is rapidly nearing completion. The gymnasium is to be added to. Three new residences have recently been completed—one for art, one for applied science, and one for medical students. A new site has been found for the buildings of the Faculty of Education. To the east of the McMaster building ground is reserved for a museum, while further east, directly across Queen's Drive, the foundations are being erected for the building of household science, the gift of Mrs. Massey-Treble. The women students have recently had erected a fine residence, known as Queen's Hall, which has been so successful that accommodation cannot be provided for all who apply.

Class Treatment of Tuberculosis in Montreal.

The "class treatment" at home of tuberculosis patients was started in Montreal in December, under the charge of

Dr. H. S. Harding and a trained nurse. It numbers seven members and is the first of its kind in Canada. The members on joining the class agree that they will follow strictly the directions of the medical man and nurse in charge. It is called the alpha class. This system of class treatment was inaugurated in Boston by Dr. Pratt who gave a number of lectures on the subject at the recent Tuberculosis Exhibition in Montreal. In Boston the system has been carried on with great success. It is stated that a large percentage of those who enter these classes recover and return to their daily work in a perfect state of health.

Toronto, Jan. 12th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Changes in Type of Military Hospitals.

A NEW type plan of military family hospitals has been drawn up and several new hospitals now under construction are being built according to it. The plan allows of better accommodation for lying-in cases, for isolating infectious cases, and for an out-patient department. The administrative parts have been added to and details of construction and fittings have been brought into line with modern improvements. A Warren's cooking range is being provided for the station hospital instead of the "chulas" (earthern fireplaces) authorised for all hospitals. Similar ranges have proved a success at Quetta station hospital and are being used in a number of barracks. If further trial confirms this it is proposed that these ranges shall replace the somewhat primitive arrangements at present being used.

Progress of Vaccination in the Central Provinces.

The Chief Commissioner of the Central Provinces, in reviewing the triennial report on vaccination for the year 1907–08, says: "The one thing certain is that the progress made in protecting the population from small-pox has not been entirely satisfactory and that inefficiency among the vaccinators and insufficient supervision over them are largely responsible for the lack of progress. The report from the Mandla district, while unsatisfactory in itself, has the merit of throwing considerable light on the unreliability of some of the results claimed, and the method of inspection which was followed by the civil surgeon might with advantage be followed in other districts also." The use of glycerinated lymph is steadily increasing, 98·62 per cent. of the operations being performed in 1907–08 with this lymph. This is satisfactory, but the results compared unfavourably with other kinds of lymph, which is ascribed to the inexperience of vaccinators.

Food and Water Supplies.

A Government of India circular dealing with the provision and maintenance of pure water-supplies at railway stations has been issued by the Railway Board to all railway authorities, who have been requested to circulate it widely amongst responsible officials. Orders have also been issued with the concurrence of the Railway Board for the sanitary inspection of railway refreshment rooms and their surroundings, as far as food- and water-supplies are concerned, at all railway stations where it is considered necessary in connexion with the health of the troops. A box for storing groceries in barrack kitchens has been designed and brought to the notice of commanding officers with a view to its being introduced regimentally.

Sewage and Refuse Disposal.

To meet modern sanitary improvements some new type plans for latrines and urinals for the use of British troops in barracks have recently been sanctioned by army headquarters, Simla; both are provided with impermeable floors. The latrine is arranged for the use of a solution of a disinfectant in the pans and for cleaning them, instead of earth as used at present. The new system is not yet, however, sanctioned for all stations. The urinal is made with slate facings to the walls and partitions, with a drain on the floor. This will replace the trough pattern at present in use. A means of connecting the outlet pipes of kitchen sinks and urinals with their respective receptacles has been sanctioned. This allows of the receptacle being closed and prevents the access of flies to the contents of the receptacles. The use of a solution of a volatile disinfectant or kerosine oil in latrine pans instead of earth has been extended to most barracks and hospitals, and it is proposed to install a sewerage system with biological treatment and disposal of the effluent on land in connexion with a new set of barracks and hospital now being built. This will be the first installation of the kind in Indian barracks. An improved pattern of rubbish cart with a lid has also been approved and is being introduced as funds become available. Instructions regarding the more frequent removal and better disposal of stable litter from the lines of mounted corps have been issued.

Disinfection in the Army.

The scale of authorised disinfectants has been revised and crude carbolic acid and the chemicals for generating chlorine gas have been omitted, these being found to be of very uncertain composition under Indian conditions. Saponified cresol, which will be of a definite bactericidal strength, has been substituted.

Jan. 2nd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

British Medical Association: Victoria Branch.

THE annual meeting was held on Oct. 2nd. The financial position, as was expected, showed a slight falling off since the amalgamation with the Medical Society of Victoria, but it is hoped this will soon be overcome by an increased membership. The retiring President, Mr. G. A. Syme, delivered an address contrasting the surgery of his student career with present-day methods. The office-bearers for 1909 were announced as follows:—President: Mr. G. Cuscaden. Vice-Presidents: Dr. R. R. Stawell and Dr. P. S. Webster. Honorary treasurer: Dr. C. H. Mollison. Honorary secretary: Dr. H. Laurie. Honorary librarians: Mr. A. W. F. Noyes and Dr. H. Stephens. Council: Mr. Syme, Mr. A. Lewers, Dr. W. Moore, Mr. F. W. Morton, Mr. W. Beattie-Smith, Dr. W. R. Boyd, Dr. A. J. Wood, and Dr. L. J. Balfour.

Freeman and Wallace.

The examination in bankruptcy of Louis Rosenberg, *alias* Howard Freeman, of the notorious Freeman and Wallace Medical Institute, has thrown some interesting sidelights on public gullibility. The "firm" is stated to have had a turnover in some years of £24,000 to £25,000. The first rebuff was the action of New Zealand in prohibiting correspondence. Even after this was absolutely cut off the secretary gave evidence they got a mail of £983 by strategy. The Commonwealth Government subsequently declined to deliver letters to the firm and the climax of its misfortunes was reached when a verdict for £450 and costs was awarded against it in New South Wales. Freeman denied that he is possessed of extensive property in San Francisco.

Federal Quarantine.

An Act was passed last session giving the Commonwealth Government power to take over the quarantine departments of the various States and to place them under Federal control. This Act will come into operation on July 1st, 1909, and from that date uniform laws and regulations will be brought into force throughout Australia. A conference of the principal quarantine officials will be held in Melbourne early in 1909. This conference will go fully into the question of future administration and will make recommendations to the Federal Government. The Comptroller-General of Customs has meanwhile visited all the States and inspected their quarantine arrangements and he will make a separate report on the subject.

Charitable Relief in Victoria.

The Victorian inspector of charities has issued his annual report. The total number of separate recipients of charitable aid in Victoria is given as 146,467, of whom 110,516 received outdoor treatment. The population of Victoria is about 1,200,000. The income of Victorian charities was made up as follows: Government grants, £125,000; municipal grants, £11,834; local contributions, £75,784; legacies and bequests, £36,000; interest, £12.945; patients' contributions, £20,033; out-patient fees, £6003; and value of inmates' labour, £15,669.

The report states: "Were admission to the public hospitals to be limited to those in destitute circumstances very few of these institutions would be required. For instance, in the metropolitan area the Melbourne Hospital, with special hospitals, would be ample, and these latter would be greatly reduced in size."

State Children's Relief Board.

The report of the State Children's Relief Board for New South Wales has been issued and covers the 12 months ending in April, 1908. It sets forth that the number of children now under State supervision amounts to 7835, an increase on the previous year of 786. Of these 4202 are placed apart from their mothers and 3623 are with their mothers. The proportion of children boarded out apart from their parents was 2·65 per 1000, whereas in Great Britain the proportion is only 1·75 per 1000. The total expenditure of the department was £75,960, an increase of £6137. The actual cost to the State per head for each child was £15 10*s.* 2*d.* 1401 children were charged before the children's courts during the same period which represented a decrease of 201 upon the preceding year.

Obituary.

Almost the last of the older generation of Melbourne surgeons died on Dec. 10th in the person of Mr. J. Holden Webb, M.R.C.S. Eng. The late Mr. Webb was born in Cape Town but was educated in England at Marlborough. He studied for the medical profession at St. Mary's Hospital, London, where he held a dual house appointment. He afterwards proceeded to Netley and went through the military course at that school. He arrived in Victoria about 1872 and was appointed house surgeon at the Amherst Hospital, a position he afterwards relinquished for that of resident surgeon at the Creswick Hospital. After four or five years in the country he came to Melbourne and soon acquired a name as a skilful surgeon. He was elected to the out-patient surgical staff of the Melbourne Hospital and acted also as indoor surgeon. He also was for a time lecturer on surgery in the University of Melbourne. Mr. Webb was one of the most ardent disciples of Listerian principles in their early days and did much to bring about a better sanitation and arrangement of the surgical side of the Melbourne Hospital at a time when it was terribly septic. As a surgeon Mr. Webb was dexterous and original, but a certain note of eccentricity in manner prevented his views obtaining the consideration which they would otherwise have been given. Latterly Mr. Webb had been absorbed in a study of cancer problems, and although his views lacked scientific precision he obtained some remarkable clinical results and his treatment by injections of drugs attracted attention outside Australia. Although his signed contributions to medical literature are not numerous Mr. Webb wrote clearly and forcibly and did a good deal of journalistic and other work with his pen. He was for many years honorary librarian of the Medical Society of Victoria and in that capacity took a keen interest in completing its periodical sets, some of which are now very valuable.

Milk-Supply.

The committee of the Lady Talbot Institute for supply of pure milk to the poor intends during the coming summer months to employ two trained nurses to visit the poorer homes and to instruct mothers in milk keeping and the feeding of infants. The committee also proposes to supply a simple ice-chest to each home in which milk is being given under the nurses' direction and to arrange for the necessary quantity of ice as required.

Personal Items.

Dr. F. W. Morton and Colonel Charles Ryan, who were in England last summer and represented the Victorian branch at the annual meeting of the British Medical Association, have returned to Melbourne and resumed practice. Mr. G. A. Syme, F.R.C.S. Eng., will leave early next year for a trip to Japan and Europe; and Dr. D. Murray Morton, senior surgeon to St. Vincent's Hospital, will leave for London in February.

Dec. 24th, 1908.

THE BRISTOL MEDICAL CHARITIES.—During 1908 the employees of Messrs. J. S. Fry and Sons at Bristol collected £587 for the local medical charities.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The following have satisfied the examiners in Tropical Medicine and Hygiene:—

H. C. Brown, J. Dorgan, and H. R. Dutton, Emmanuel; L. T. R. Hutchinson, J. M. O'Brien, A. G. Payne, P. L. Stallard, and H. E. Stanger-Leathes, Trinity.

The following degrees were conferred on Jan. 16th:—

M.C.—R. Davies-Colley, Emmanuel.
B.C.—A. E. Stansfeld, St. John's; F. J. Clemenson and R. F. Priestley, Gonville and Caius; and B. Hughes, H. Selwyn.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held in January the following candidates passed in the subjects indicated:—

Surgery.—G. K. Aubrey (Sections I. and II.), King's College Hospital; J. Bramley-Moore (Section I.), University College Hospital; J. B. Tackaberry (Sections I. and II.), Middlesex Hospital; H. B. Waller (Section II.), London Hospital; and H. V. White (Sections I. and II.), Manchester.
Medicine.—H. W. B. Danaher (Section II.), London Hospital; J. J. S. Rowe (Sections I. and II.), Charing Cross Hospital; and J. B. Tackaberry (Sections I. and II.), Middlesex Hospital.
Forensic Medicine.—J. B. Tackaberry, Middlesex Hospital.
Midwifery.—H. S. Brown, Birmingham; A. C. Jenkins, London Hospital; B. A. Keats, St. Bartholomew's Hospital; and J. B. Tackaberry, Middlesex Hospital.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—G. K. Aubrey, J. J. S. Rowe, J. B. Tackaberry, H. B. Waller, and H. V. White.

UNIVERSITY OF LIVERPOOL.—At a meeting of the Senate held on Jan. 27th the following diplomas were awarded to students who had satisfied the examiners in the recent examinations:—

Diploma in Tropical Medicine.—John Rhodes Dickson, M.B., C.M. Edin.; Henry Joseph Glover, M.B., C.M. Edin.; Francis Wood Greaves, M.B., Ch.B. Edin.; James Herbert Hugh Harrison, M.R.C.S., L.R.C.P.; Jamshed Byramji Mama, L.M.S., Bombay; Charles Ross Pearce, M.B., C.M. Edin.; Alexander Frederik Schoorel, M.D. Leyden; and George Edward Stewart, M.B., C.M., F.R.C.S. Edin.
Diploma in Public Health.—Charles Samuel Brewer, L.R.C.P., L.R.C.S. Edin.; Herbert Macpherson Cargin, M.B., Ch.B. Edin.; Katharine Rosebery Drinkwater, L.S.A., M.B., B.S. Lond.; Bertram Thomas Johnson Glover, M.B., Ch.B. Liverp.; Clare Oswald Stallybrass, M.R.C.S., L.R.C.P., M.B., B.S. Lond.; and John Teare, M.B., Ch.B. Vict. and Liverp.

FOREIGN UNIVERSITY INTELLIGENCE.—*Berlin:* Dr. Felix Hirscheld and Dr. Georg Jürgens, *privat-docenten* of Medicine, have been granted the title of Professor.—*Breslau:* Dr. August Most, surgeon to St. George's Hospital, has been recognised as *privat-docent* of Surgery.—*Budapest:* Professor Ernst Jendrassik has taken over the charge of the Second Medical Clinic.—*Freiburg:* Dr. Stock, *privat-docent* of Ophthalmology, has been promoted to an Extraordinary Professorship.—*Greifswald:* Dr. Siegfried Weber, *privat-docent* of Medicine, has been granted the title of Professor. Dr. P. Esch, Physician to the University Gynæcological Clinic, has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Leipsic:* Dr. Pfaff, Director of the Technical Department of the University Dental Clinic, has been appointed Extraordinary Professor of Odontology.—*Odessa:* Dr. S. Iakovleff of St. Petersburg has been appointed Extraordinary Professor of Dermatology.

MEDICAL SICKNESS AND ACCIDENT SOCIETY.—The usual monthly meeting of the executive committee of the Medical Sickness, Annuity, and Life Assurance Society was held at 429, Strand, London, W.C., on Jan. 15th. There were present: Dr. F. de Havilland Hall in the chair, Mr. J. Brindley James, Dr. F. C. Martley (Dublin), Dr. M. G. Biggs, Dr. M. Greenwood, Dr. W. Knowsley Sibley, Mr. Edward Bartlett, Dr. St. Clair B. Shadwell, Dr. J. W. Hunt, Dr. H. A. Sansom, Mr. Frederick Wallace, Mr. F. S. Edwards, Dr. Frederick S. Palmer, Dr. Francis J. Allan, Mr. J. F. Colyer, and Dr. J. B. Ball. In accordance with its custom for many years past, the committee devoted the bulk of the time at the first meeting of the year to the examination of special reports on the cases of those members who seem to be unlikely to be ever able to resume professional work. One of the special features of the society is the practically permanent provision made for those members who appear to be afflicted chronically. When the society was first started, although this plan was determined upon, and a considerable

outlay in respect of it foreseen, yet as the years have gone by the number of these chronic cases has increased more quickly than was anticipated, and now, numbering over 40, they require an out-go exceeding £3000 per annum. Prospectuses and all further particulars can be obtained on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery-lane, London, W.C.

CHELSEA CLINICAL SOCIETY.—The annual dinner of this society will take place at the Gaiety Restaurant, Strand, on Thursday, March 4th, at 7.45 for 8 o'clock. Tickets, the price of which is 7*s.* 6*d.* (exclusive of wine), can be obtained from the dinner secretary, Dr. K. R. Collis Hallowes, 104, Buckingham Palace-road, S.W.

MEDICAL SOCIETY OF LONDON.—The subject of the Lettsomian lectures for 1909, to be delivered by Dr. Sidney Martin, F.R.S., will be Functional Disorders of the Stomach and Intestines: their Diagnosis from Organic Disease and Treatment. Lecture I. will be given on Feb. 1st, Lecture II. on Feb. 15th, and Lecture III. on March 1st. The lectures will commence at 9 P.M.

SEAMEN'S HOSPITAL SOCIETY.—Lord Robert Cecil will preside at a dinner of the staff and students of the London School of Clinical Medicine at the Hotel Savoy on Friday, Feb. 19th. Amongst those who will support the chairman are the following: Sir William H. Bennett, Sir W. J. Collins, Sir William Watson Cheyne, Sir William S. Church, Sir Richard Douglas Powell, Lord Ridley, Sir Thomas Smith, and Professor E. H. Starling.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Francesco Legge, professor of anatomy in the Cagliari Medical School.—Dr. P. I. Diakonoff, professor of clinical surgery in the University of Moscow.—Dr. Gottfried Rügenberg, member of the German Reichsrath.—Dr. Giuseppi Dele' Isola, professor of internal pathology in the University of Pavia.

LIVERPOOL SCHOOL OF TROPICAL MEDICINE: THE INAUGURAL ADDRESS.—At the University Club on Jan. 25th Sir Alfred Jones, K.C.M.G., the chairman of the School of Tropical Medicine, delivered the inaugural address to the students on the subject of the "Practical Importance of the Study of Tropical Medicine." Previously to delivering the address Sir Alfred Jones entertained the students, Sir Rubert Boyce, F.R.S. (the dean of the school), Professor Ronald Ross, C.B., F.R.S., Dr. J. W. W. Stephens, Dr. Anton Breinl, and other gentlemen to dinner.

GRESHAM COLLEGE.—Four lectures will be delivered at Gresham College, Basinghall-street, London, E.C., on Tuesday, Feb. 9th; Wednesday, Feb. 10th; Thursday, Feb. 11th; and Friday, Feb. 12th, by Dr. F. M. Sandwith, Gresham Professor of Physic. Lecture I. will deal with the Results of Recent Research on Certain Diseases, Lecture II. with Diphtheria, and Lectures III. and IV. with the Life-work of Pasteur. The lectures are free to the public and will begin each evening at 6 o'clock

REGULATION OF THE SALE OF MEDICINES, &C., IN ITALY.—A report received at the British Foreign Office from H.M. Embassy at Rome states that a Bill to govern the business of druggists and to regulate the working of pharmacies has been introduced in the Italian Chamber of Deputies by the Prime Minister (who is also Minister of the Interior). Article 19 of the Bill strictly forbids any but druggists to sell or to dispense drugs prepared in doses and in forms (prescriptions) for medicine (*medicinali a dose e forma di medicamento*). These can be sold only in the pharmacy itself. In this category are included also "medical preparations and medicinal specialities placed on the market in a made-up condition and in accordance with a formula previously laid down by the producer." Such preparations "must bear on the label attached to each receptacle the precise denomination of the component parts with an indication of the doses, and the denomination must be that which is usual in medical practice, excluding chemical formulæ." It is also forbidden to sell such preparations when by labels or advertisements other attributes are given to them than those which they really possess, or if they bear special chemical indications which do not correspond to their real composition. The Bill is meeting with much opposition and it is believed that if it passes at all it will only do so in a considerably modified form.

DONATIONS AND BEQUESTS.—The late Mr. W. Millington of Cheltenham has bequeathed £1000 to the Cheltenham General Hospital, and £200 to the Eye, Ear, and Throat Hospital, Cheltenham.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—The annual College dinner will take place on Saturday, Feb. 20th, at 8 P.M. His Excellency the Lord Lieutenant has graciously accepted the invitation of the President and Fellows to be present at the dinner.

THE AFTER-CARE ASSOCIATION.—The annual meeting of this association will be held at 26, Devonshire-place, W., on Wednesday, Feb. 3rd, at 3 P.M., with Dr. G. H. Savage in the chair. A paper will be read by Dr. Robert Jones on the Urgent Necessity of Helping Mental Convalescents.

THE AUTHORS' CLUB.—At the house dinner of the Authors' Club on Jan. 25th Mr. R. Brudenell Carter, F.R.C.S., occupied the chair, and welcomed Mr. John St. Loe Strachey, the editor of the *Spectator* and the guest of the evening, with graceful eloquence. Mr. St. Loe Strachey, after replying, opened a discussion on the topic, "Are Journalism and Literature Incompatible?" He quoted freely from the English classics and concluded a well-reasoned and sprightly address by expressing his conviction that their compatibility, though difficult, was established. The majority of the subsequent speakers, who included Mr. Percy White and Mr. Ford Maddox Hueffer, were in accord with this view, but Mr. Louis Zangwill was unable to accept all of Mr. St. Loe Strachey's arguments.

PRESENTATION TO A MEDICAL PRACTITIONER.—At a meeting of the Nottingham Medico-Chirurgical Society on Jan. 20th an illuminated address was presented to Alderman F. R. Mutch, M.D., in recognition of his public services to the city as chairman of the health committee of the Nottingham corporation during a period of nine years. The address spoke of his "conduct in this important office as having been such as to reflect the highest possible credit upon himself and upon the profession to which he belongs." Dr. Mutch, in acknowledging the testimonial, referred briefly to his 30 years' residence in and practice in Nottingham, over 20 years' service on the city council, and, perhaps most arduous of all, nine years' continuous service as chairman of the health committee.

BOOKS, ETC., RECEIVED.

LIPPINCOTT (J. B.) COMPANY, Philadelphia and London.

Phrenology or the Doctrine of the Mental Phenomena. By J. G. Spurzheim, M.D. With an introduction by Cyrus Elder. Price 12*s.* 6*d.* net.

International Clinics. Edited by W. T. Longcope, M.D., with collaboration. Vol. IV., Eighteenth Series. 1908. Price not stated.

MACMILLAN AND CO., LIMITED, London.

Doctors. An Address delivered at the Middlesex Hospital. By Rudyard Kipling. Price not stated.

MISSION PRESS, Kolhapur.

The General Dispenser. By K. S. Agnihotri, Ph.G. Third edition. Price Rs. 1.4.

Epitome of Urine Examination. By K. S. Agnihotri, Ph.G. Price 10 annas.

Practical Hints in General Medicine. Series I. By K. S. Agnihotri, Ph.G. Price 12 annas.

NATIONAL ANTI-SWEATING LEAGUE, London.

The Case for Wages Boards. By Constance Smith. Price 1*s.* net.

OLIVER AND BOYD, Edinburgh and London.

Practical Gynæcology. By Netta Stewart and James Young, M.B., F.R.C.S.E. Price 5*s.* net.

PHYSICIANS' BOOK PUBLISHING CO., New York and London (BAILLIÈRE, TINDALL, AND COX., London).

Catechism of Hæmatology. By Robert Lincoln Watkins, M.D. Price 3*s.* 6*d.* net.

PRESCRIBER, THE, PUBLISHING OFFICE, Edinburgh.

The Prescriber. Edited by Thos Stephenson, Ph.C., F.C.S Vol. II. Price 7*s.* 6*d.*

REBMAN, LIMITED, London.

Syphilis, its Diagnosis, Prognosis, Prevention, and Treatment. By Thomas Pugh Beddoes, M.B., B.C. Camb., F.R.C.S. Eng. Price 5*s.* net.

SANITARY PUBLISHING COMPANY, LIMITED, London.

The Food Inspector's Handbook. By Francis Vacher. Fifth edition. Price 7s. 6d. net.

Sanitary Record Year Book and Diary for 1909. Price 2s. 6d. net.

The Planning of Fever Hospitals and Disinfecting and Cleansing Stations. By Albert C. Freeman, M.S.A. Price 7s. 6d. net.

SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION (Secretary, Dr. W. D. Haggard, Nashville, Tennessee, U.S.A.).

Transactions of the Southern Surgical and Gynecological Association. Vol. XX. Edited by W. D. Haggard, M.D.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BRUNTON, J., M.D. Glasg., M.R.C.S., L.R.C.P. Lond., D.P.H. Cantab. has been appointed Certifying Surgeon under the Factory and Workshop Act for the St. Pancras District of the county of London.

CHEESMAN, EDWARD ROBERT RAMSAY, L.S.A. Lond., has been appointed Public Vaccinator by the Shaftesbury (Dorset) Board of Guardians.

COWELL, E. M., M.B., B.S., has been appointed House Surgeon to University College Hospital.

DANIELS, D. W., M.B., B.S. Lond., M.R.C.S. Eng., has been appointed Casualty House Surgeon at St. Mary's Hospital, Paddington, W.

ELLIOTT, T. R., M.D. Cantab., has been appointed House Physician to University College Hospital.

HERD, HENRY, M.B., Ch.B. Edin., has been appointed Assistant School Medical Officer to the Manchester Education Committee.

LONGTON, GEORGE HAROLD, M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Anæsthetist to the Royal Hospital for Diseases of the Chest.

MCNAUGHTON, J. G., M.D. Edin., M.R.C.P. Edin., has been appointed Honorary Assistant Physician to the Manchester Hospital for Consumption and Diseases of the Throat.

NEAVE, E. F. M., M.D. Edin., has been appointed a Medical Inspector of School Children to the Education Committee of the City of Manchester.

RYGATE, DAVID JOHN, L.R.C.P. Lond., M.R.C.S., L.S.A., has been appointed District Medical Officer by the Williton (Somerset) Board of Guardians.

SCOTT, S. GILBERT, M.R.C.S., L.R.C.P. Lond., has been appointed Radiographer to the Poplar Hospital for Accidents, E., and Honorary Radiographer to the Hospital for Diseases of the Heart, Soho-square.

YONGE, EUGENE S., M.D. Edin., has been appointed Honorary Physician to the Manchester Hospital for Consumption and Diseases of the Throat.

YOUNG, JAMES, M.D., C.M. Glasg., has been appointed Honorary Physician to the Handel Cossham Hospital, Kingswood, near Bristol.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRKENHEAD BOROUGH HOSPITAL.—Junior Resident House Surgeon. Salary £80 and fees.

BRIDGWATER HOSPITAL.—House Surgeon, unmarried. Salary at rate of £80 per annum, with board, lodging, and washing.

BRISTOL ROYAL INFIRMARY.—Two House Physicians, One House Surgeon, One Obstetric and Ophthalmic House Surgeon, and One Throat and Nose and Ear House Surgeon. Salary of two former £100 per annum, and of two latter £75 per annum. Also One Casualty Officer. Salary £50 per annum. With apartments, board, and laundry in each case.

CAMBRIDGESHIRE, &c., ASYLUM, Fulbourn.—Senior Assistant Medical Officer, unmarried. Salary £150 per annum, with board, lodging and washing.

CHELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge of the Branch Dispensary. Salary £80 per annum, with board and lodging.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £100 per annum, with board, residence, attendance, and washing.

DURHAM COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £150, with board, laundry, and attendance.

EDINBURGH, UNIVERSITY OF.—Examiner in Forensic Medicine.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark Bridge-road, London, S.E.—House Surgeon. Salary at rate of £60 per annum, with board, residence, and washing.

GATESHEAD, COUNTY BOROUGH OF.—Assistant School Medical Officer. Salary £250 per annum.

GORDON HOSPITAL FOR FISTULA, &c., Vauxhall Bridge-road, S.W.—Resident House Surgeon.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary at rate of £60 per annum, with board, apartments, and washing.

LONDON HOSPITAL, Whitechapel, E.—Medical Registrar. Salary £100 per annum.

MACCLESFIELD GENERAL INFIRMARY.—Junior House Surgeon. Salary £80 per annum, with board, residence, and washing.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Surgeon. Salary £100 per annum, with board, &c. Also Third Resident Assistant House Surgeon. Salary £70 per annum, with board, &c.

MANCHESTER CHILDREN'S HOSPITAL.—Assistant Medical Officer. Salary £100 per annum.

MANCHESTER HOSPITAL FOR CONSUMPTION AND DISEASES OF THE THROAT AND CHEST.—Assistant Medical Officer and Pathologist at the Out-patient Department, Hardman-street. Salary £60 per annum.

MICKLEOVER, DERBY COUNTY ASYLUM.—Junior Assistant Medical Officer. Salary £120 per annum, with apartments, board, washing, and attendance.

MILLER GENERAL HOSPITAL, Greenwich-road, S.E.—Honorary Surgeon.

MORPETH, NORTHUMBERLAND COUNTY ASYLUM.—Junior Assistant Medical Officer (female). Salary £120 per annum, with board, apartments, laundry, and attendance.

NATIONAL HOSPITAL FOR THE RELIEF AND CURE OF THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury.—Assistant Physician.

NORTHAMPTON GENERAL HOSPITAL.—Senior Resident Medical Officer, unmarried. Salary £120 per annum, with apartments, board, washing, and attendance.

NOTTS CONSUMPTION SANATORIUM, Ratcher Hill, near Mansfield.—Resident Medical Officer (female). Salary £100.

OXFORD, RADCLIFFE INFIRMARY AND COUNTY HOSPITAL.—House Physician for six months. Salary at rate of £80 per annum, with board, &c. Also Junior House Surgeon for six months. Salary at rate of £40 per annum, with board, &c.

PAISLEY INFECTIOUS DISEASES HOSPITAL.—Assistant Medical Officer. Salary £100 per annum, with board, washing, and attendance.

QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Physician for six months. Salary at rate of £80 per annum, with board, residence, and laundry.

ROXBURGH DISTRICT ASYLUM, Melrose.—Assistant Medical Officer. Salary £150 per annum, with board, rooms, and washing.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—House Physician for six months. Salary at rate of £60 per annum, with board, lodging, and washing.

ROYAL NAVY MEDICAL DEPARTMENT.—Examination for 15 Commissions.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square.—Honorary Obstetric Physician.

SALISBURY INFIRMARY.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, lodging, and washing.

STAFFORD, STAFFORDSHIRE GENERAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Dental Surgeon.

WAKEFIELD, WEST RIDING ASYLUM.—Pathologist and Assistant Medical Officer. Salary £250 per annum, with board, apartments, and attendance.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, &c., 73, Welbeck-street, W.—Resident House Physician for six months. Salary at rate of £100 per annum, with residence, board, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Assistant Anæsthetist.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Surgical Registrar. Salary £50 per annum.

Births, Marriages, and Deaths.

BIRTHS.

DANIEL.—On Jan. 24th, at 8, St. James'-avenue, West Ealing, the wife of Alfred Wilson Daniel, M.D. Cantab., of a daughter.

HARTLEY.—On Jan. 20th, at De Parys-avenue, Bedford, the wife of Arthur Conning Hartley, M.D., F.R.C.S. Edin., of a daughter.

TURTLE.—On Jan. 23rd, at 18, Cambridge-terrace, Hyde Park, W., the wife of Godfrey de Bec Turtle, M.D., M.R.C.P., of a daughter.

MARRIAGES.

HAMMOND—ORD.—On Jan. 21st, John Maximilian Hammond, M.B. London, only surviving son of Henry A. Hammond, of Sundridge House, Bournemouth, to Julia Mary Ord, of Meadfoot, Bournemouth, younger daughter of the late Alexander Craven Ord, of Ongar Dene, Bournemouth.

PATERSON—SHEPLEY.—On Jan. 20th, at St. John's, Paddington, by the uncle of the bridegroom, Marcus Sinclair Paterson, M.B., to Louise, widow of George Shepley, of New York.

DEATHS.

EASTES.—On Jan. 23rd, suddenly, at Gloucester-terrace, Hyde Park, W., George Eastes, M.B., F.R.C.S., aged 67.

JONES.—On Jan. 23rd, at Riviera-terrace, Dawlish, Herbert C. W. Jones, M.A., M.B. Cantab., M.R.C.S., L.S.A.

WINTERBOTHAM.—On Jan. 23rd, at Wembdon, Bridgwater, Washington Lafayette Winterbotham, J.P., M.B., in his 71st year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages and Deaths.

Notes, Short Comments, and Answers to Correspondents.

CHEAP LAMPS AND ACCIDENTS.

AT an inquest held at Battersea a few weeks ago it was shown that an elderly woman had been burned to death through the oil in her lamp being spilled and becoming ignited when she was lighting it "at the fire." Presumably she lighted a taper while she held the lamp near the fire, and considering the nature of the lamp it is not surprising that a terrible result followed. It cost the sum of 1*d.*, the container was of glass, and the tin burner was not even provided with a screw to keep it in its socket. The officer in charge of the fire station gave evidence that such lamps as that described were extensively used. The oil had a flash point of 90°. He also informed the court that the fire brigade was summoned two and a half hours after the burning took place. Why this should have been done at all after such an interval is not clear, as by then there could have been no need for the assistance of firemen or engines. That it was not done more promptly was, however, due to a mistaken idea that if anyone called the fire brigade and an engine was sent he would have to pay £5. There appears to be no foundation for this belief and it was mentioned that had the fire brigade been called immediately first aid could have been rendered by those in charge, appliances for the purpose being carried on all engines. The jury, in returning a verdict of accidental death, drew attention to the dangerous type of lamp used by the deceased. It is obvious that if such articles are permitted to be sold the poor will be tempted by their price to buy them and that explosions and burning accidents must take place as an inevitable consequence, even if they are carefully handled. We have been considerably abused for the prominence which we have given at different times to the dangers of cheap lamps by those who consider that to call attention to these deadly utensils is in some way to deny the fact that the flash point of some illuminating oils is dangerously low. The case is a good one for our critics to think about.

ENSILAGE AND DAIRY COWS.

To the Editor of THE LANCET.

SIR,—Can your readers tell me whether there has been any marked increase of infant and juvenile diarrhœa and sickness during the first fortnight in December last in any of the London districts which have been supplied during that month with milk from dairies where the cows have been fed on "ensilage." I write to inquire because early in December a "silo" was opened in our neighbourhood and the "ensilage" (carted past some of the houses and through the lanes of the village) was spread upon the fields bordering some of the houses and the village school for the use of the herd of cows of one of the large dairy-farms supplying milk to London. The overpowering smell of the ensilage, especially during the first fortnight, caused diarrhœa, nausea, and sickness among all classes, such as householders, schoolmistresses, railway servants, house servants, and children living in different parts of the village, whose dwellings were filled with the odour. As the smell thus affects even adults, men and women, it seems to be worth while inquiring whether the milk from ensilage-fed cows affected the infants and children partaking of it during the first fortnight in December when the smell was at its greatest strength.

I am, Sir, yours faithfully,

Jan. 16th, 1909. "JOHN BARRETT KNOX."

MEDICAL MATTERS IN THE FEDERATED MALAY STATES.

THESE States are situated on the mainland of the Malay Peninsula and are closely connected with the Straits Settlements; they consist of the States of Perak, Selangor, Negri Sembilan, and Pahang, and are administered under the advice of a British Resident-General who controls the Residents subject to the instructions of the High Commissioner (Sir John Anderson Kemly), who is also Governor of the Straits Settlements. The Resident-General (Sir Willam T. Taylor, K.C.M.G.), in his report, dated Kuala Lumpur, Aug. 20th, 1908, which has just been issued as a Colonial Office paper for presentation to Parliament, states that there was a marked increase in the number of admissions to Government hospitals during the year 1907, the total being 69,131 as against 57,592 in 1906. The increase in the number of out-patients treated was even more noticeable, the total, which was 120,320 in 1906, having risen in 1907 to 147,638. In Perak the outdoor dispensaries attached to hospitals administered relief in 51,611 cases, and the travelling dispensaries carried relief of which use was made on 35,170 occasions. It was Dr. M. J. Wright who initiated these travelling dispensaries in 1896, and he states that "this form of medical aid is one which finds favour with Asiatics. It saves them the trouble of a visit at the commencement of disease to the fixed hospitals, which are removed from many large centres of population; yearly, as mining and other enterprises progress and fresh ground is taken up, the distances from the Government hospitals become more marked. The travelling dispensaries carry medicine and treatment to within easy reach of persons residing away from the towns and make it possible for them to obtain help at an early stage of sickness. Not only is this an advantage to the people but it also benefits Government directly by helping to decrease the necessity for the more expensive indoor treatment." The chief diseases prevalent appear to have been malaria, pulmonary complaints, beri-beri, dysentery, and venereal diseases. An outbreak of cholera occurred on an estate in Kuala Selangor. There were 12 cases, of which 11 proved fatal, but prompt action taken by the medical and district authorities confined the trouble to the scene of the outbreak and stamped it out within a few days. Diphtheria occurred in Selangor for the first time. There were three cases, of which one proved fatal. There was a slight outbreak of small-pox in Pahang resulting in 56 cases and three deaths. 32,526 persons were vaccinated during the year, in the case of about 73 per cent. of whom the operation was successful. It is gratifying to notice that the objections at one time evinced by Malays to this form of treatment are gradually being overcome and that, as a rule, they now show a belief in its efficacy. The Institute for Medical Research continued during the year under the direction of Dr. H. Fraser. The most important work undertaken has been in the way of investigation of the alleged connexion between beri-beri and rice-eating. The most persistent supporter of this view is Dr. W. L. Braddon, the State surgeon of Negri Sembilan, whose conclusions appear to be supported by observations recently made by other Government medical officers, notably by Dr. W. Fletcher at the Kuala Lumpur Lunatic Asylum, and a considerable body of evidence has been accumulated tending to incriminate the so-called Siamese rice as the principal source of a poison that produces beri-beri. The investigation carried on during the year, and still proceeding, divided itself into two parts, clinical and chemical. The clinical part of the investigation has been placed under the direction of Dr. A. T. Stanton, whose services were obtained from the School of Tropical Medicine, and the director, in addition to general supervision of the experiment, has undertaken with the chemist of the institute the chemical part of the investigation. The bacteriologist attached to the institute has been engaged throughout the year on work of the usual character. The chemist, in connexion with his analytical examination of the samples of milk brought to him, confirms a statement in a previous report that "the milk of both Indian and Siamese cows is equal in richness to that of the various British breeds, while the milk from the buffalo is much richer, both in fats and total solids, and has a higher 'non-fatty solid' value than that of the cow." The entomologist undertook in connexion with the inquiry into the alleged increase of malaria in certain districts of Kuala Lumpur an examination of the lake and adjoining pools in the public gardens, the ground about the General Hospital, the ground below the European Hospital, the recently cleared land in the vicinity of Federal Hill, and the Club-road swamps. In all these localities he found anopheline larvæ in varying numbers.

MASKS FOR BAKERS.

To the Editor of THE LANCET.

SIR,—Can any of your readers give me any information as to the most effective masks or respirators worn by bakers when making bread to prevent them inhaling the flour? Or would anyone give me the address of some makers from whom I could obtain them?

I am, Sir, yours faithfully,

Jan. 26th, 1909. V. Q. P.

TELEPHONE DISINFECTION.

WE have received from Messrs. Chas. Zimmermann and Co. of 9 and 10, St. Mary-at-Hill, London, E.C., a convenient form of apparatus for attachment to the telephone mouth-piece, consisting of a cylinder or metal collar containing a pasty mass impregnated with formaldehyde. The advantage of the "phozone" disinfector, as it is called, is that it provides practically a permanent supply of the disinfectant in a gaseous form which is obvious from its pungent odour. The "phozone" is calculated therefore to be efficient as regards preserving the mouth-piece in an aseptic condition for a considerable time, but one drawback to its use, we imagine, would be the irritating nature of the formaldehyde disengaged.

DYED MILK.

THE quarterly report of the Hove Public Analyst (Mr. S. A. Woodhead) was presented to the Hove Town Council on Jan. 14th. 51 samples were submitted for analysis during the period and of these only two were adulterated, both samples of new milk which had been artificially coloured with a small proportion of an aniline dye. "The samples," Mr. Woodhead said, "were both well above standard and needed nothing artificial to improve their appearance. Apparently such colouring matter is added indiscriminately—to make the milk appear really richer than it is." The proportion of dye, the analyst added, was so small that it could not be said to be injurious to health. This may be so, but this tampering with milk, discriminately or indiscriminately, should be dealt with very firmly by the sanitary authorities, who should keep a watchful eye upon those purveyors who are in the habit of using any colouring substance. The dye has no right to be in the milk and should be constituted an offence under the Sale of Food and Drugs Act, whether the presence of the foreign matter is infinitesimal or otherwise. More often than not milk is coloured to fortify it in appearance after it has been weakened by the addition of water; and the mere fact that a dye was added in the two samples at Hove where nothing was needed to improve their appearance only goes to show that it is the custom of certain purveyors to use colouring matter.

"AGAPEMONE."

A CORRESPONDENT incloses a newspaper containing a report of the recent ecclesiastical proceedings against the notorious Smyth-Pigott, with a covering letter in which he takes strong exception to the use of the words "fornication," "adultery," and "sexual intercourse" in the report in question and to the publication of all "such lurid details of police-court proceedings." We have read the article of which he complains and find it to be a quite legitimate report of the prosecuting counsel's speech and much less "lurid" than the history of Smyth-Pigott as presented in other journals. Would our correspondent suppress the publication of the *Times* law-reports of the Probate and Divorce Court proceedings? By the way, we would remind him that a cathedral consistory court is not a police-court.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

During the week marked copies of the following newspapers have been received:—*Manchester City News, Liverpool Daily Post, Hertfordshire Mercury, Perthshire Advertiser, Ardrossan and Saltcoats Herald, Oxford Times, Referee, Liverpool Courier, Belfast News-Letter, Reading Mercury, Dumfries Courier and Herald, Surrey Advertiser, Edinburgh Evening Dispatch, &c.*

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 20, Hanover-square, W.

TUESDAY.

THERAPEUTICAL AND PHARMACOLOGICAL SECTION (Hon. Secretaries—J. Gray Duncanson, H. Charles Cameron): at 4.30 P.M.

Dr. James Mackenzie: Counter Irritation.
Dr. E. I. Spriggs: The Treatment of Gastric Ulcer, with Analysis of Cases treated by the Lenhartz Method.

PATHOLOGICAL SECTION (Hon. Secretaries—Leonard S. Dudgeon, O. Grünbaum) at the Imperial Cancer Research Laboratory: at 8.30 P.M.

FRIDAY.

LARYNGOLOGICAL SECTION (Hon. Secretaries—George C. Cathcart, Atwood Thorne): at 5 P.M.

Cases, Specimens, &c.:
Will be shown by Dr. Dundas Grant, Sir Felix Semon (with demonstration on epidiascope), Dr. Milligan, Dr. Knowles Renshaw, Dr. Watson Williams, Mr. Clayton Fox, Mr. Chichele Nourse, Dr. Jobson Horne, Mr. Harold Barwell, and others.

SECTION OF ANÆSTHETICS (Hon. Secretaries—Llewelyn Powell, R. W. Collum): at 8.30 P.M.

Meeting:
To Consider the Advisability of Legislation to Control the Administration of Anæsthetics.

SATURDAY.

OTOLOGICAL SECTION (Hon. Secretaries—W. H. Kelson, Hunter F. Tod): at 10 A.M.

Dr. McBride: Dermoid of Mastoid Region.
Dr. Dan McKenzie: Notes on the Position of the Patient after Operations on the Mastoid.
Dr. Kelson: Notes on a Case of White Membranous Deposit in the Auditory Meatus of a Girl.
Mr. Hunter Tod and others will show Cases.

N.B.—Fellows of the Society are entitled to attend and to speak at all Meetings.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY.—9 P.M., Dr. S. Martin: On Some Functional Disorders of the Stomach and Intestines: Their Diagnosis from Organic Disease and Treatment (Lettsomian Lecture).

NORTH-EAST LONDON CLINICAL SOCIETY, Prince of Wales's Hospital, Tottenham, N.

THURSDAY.—4.15 P.M., Clinical Cases.

RÖNTGEN SOCIETY, 20, Hanover-square, W.

THURSDAY.—8.15 P.M., Discussion on the Transport of Ions (opened by Dr. H. Pirie).

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, West London Hospital, Hammersmith-road, W.

FRIDAY.—9 P.M., Pathological Evening. Specimes shown at 8 P.M.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC, 22, Chenies-street, W.C.

MONDAY.—4 P.M., Dr. G. Pernet: Clinique (Skin). 5.15 P.M., Lecture:—Dr. G. Little: The Treatment of Eczematous Patients.

TUESDAY.—4 P.M., Dr. J. E. Squire: Clinique (Medical). 5.15 P.M., Lecture:—Mr. E. M. Corner: The Therapeutic Uses and Complication of Venous Congestion.

WEDNESDAY.—4 P.M., Mr. T. P. Legg: Clinique (Surgical). 5.15 P.M., Lecture:—Some Surgical Considerations.

THURSDAY.—4 P.M., Sir Jonathan Hutchinson: Clinique (Surgical). 5.15 P.M., Lecture:—Dr. J. L. Bunch: Modern Methods of Treatment of Some Common Forms of Skin Disease.

FRIDAY.—4 P.M., Mr. N. B. Harman: Clinique (Eye).

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon, Lecture:—Dr. Low: Pathological Demonstration. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Clinical Lecture:—Dr. Davis: Diseases of Throat, Nose, and Ear.

TUESDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. S. Taylor: Diagnostic Signs in Organic Disease of the Nervous System—The Brain.

WEDNESDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women. 5 P.M., Lecture:—Mr. Baldwin: Practical Surgery,

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Dunn: Diseases of the Eyes. 2.30 P.M., Operations. 5 P.M., Lecture:—Dr. Pritchard: Vaccinotherapy.

FRIDAY.—10 A.M., Dr. Moullin: Gynæcological Operations. Lecture: Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Operations. Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Dr. Robinson: Gynæcology.

SATURDAY.—10 A.M., Dr. Davis: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 12.15 P.M., Lecture:—Dr. Pritchard: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. B. Harman: Diseases of the Eyes. 2.30 P.M., Operations. Dr. Robinson: Diseases of Women.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10 A.M., Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Nose, Throat, and Ear (Mr. H. W. Carson); X Rays. 4.30 P.M., Medical In-patient (Dr. A. J. Whiting).

TUESDAY.—Clinic: 10 A.M., Medical Out-patient (Dr. A. G. Auld). 2.30 P.M., Operations (Mr. Carson). Clinics:—Surgical Out-patient (Mr. W. Edmunds); Gynæcological (Dr. A. E. Giles). 4.30 P.M., Mr. A. de Prenderville: Some Errors in the Administration of Anæsthetics.

WEDNESDAY.—Clinics:—2.30 P.M., Medical Out-patient (Dr. T. R. Whipham); Skin (Dr. G. N. Meachen); Eye (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patient (Dr. A. J. Whiting); Surgical (Mr. H. W. Carson); X Rays. 3 P.M., Medical In-patient (Dr. G. P. Chappel).

FRIDAY.—10 A.M., Clinic:—Surgical Out-patient (Mr. H. Evans). 2.30 P.M., Operations (Mr. W. Edmunds). Clinics:—Medical Out-patient (Dr. A. G. Auld); Eye (Mr. R. P. Brooks). 3 P.M., Medical In-patient (Dr. R. M. Leslie).

LONDON SCHOOL OF CLINICAL MEDICINE, Dreadnought Hospital, Greenwich.

MONDAY.—2 P.M., Operations. 2.15 P.M., Sir Dyce Duckworth Medicine. 3.15 P.M., Mr. Turner: Surgery. 4 P.M., Mr. Lawrence: Ear and Throat. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

TUESDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Wells: Medicine. 3.15 P.M., Mr. Carless: Surgery. 4 P.M., Sir M. Morris: Diseases of the Skin. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin.

WEDNESDAY.—2 P.M., Operations. 2.15 P.M., Dr. F. Taylor: Medicine. 3.30 P.M., Mr. Cargill: Ophthalmology. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye. 2.15 P.M., Special Lecture: Dr. F. Taylor: Enlargement of the Spleen.

THURSDAY.—2 P.M., Operations. 2.15 P.M., Dr. G. Rankin: Medicine. 3.15 P.M., Sir W. Bennett: Surgery. 4 P.M., Dr. Sale-Barker: Radiography. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Ear and Throat.

FRIDAY.—2 P.M., Operations. 2.15 P.M., Dr. R. Bradford: Medicine. 3.15 P.M., Mr. McGavin: Surgery. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 12 noon, Skin. 3.15 P.M., Special Lecture: Mr. McGavin: Varicocele—considered Surgically and Ethically.

SATURDAY.—2 P.M., Operations. Out-patient Demonstrations:—10 A.M., Surgical and Medical. 11 A.M., Eye.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.

TUESDAY.—Clinical Lecture:—Dr. Turner: Selected Cases.
FRIDAY.—Clinical Lecture:—Dr. Taylor: Treatment in Nervous Diseases.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester square, W.C.

THURSDAY.—6 P.M., Chesterfield Lecture:—Syphilis: Papular (I, Miliary; II., Lenticular; III., Squamous; IV., Moist) Pustular, and Tuberculous.

UNIVERSITY COLLEGE HOSPITAL, University-street, Gower-street, W.C.

WEDNESDAY.—4 P.M., Sir William Gowers: Unilateral Optic Neuritis from Cerebral Tumour.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.).

TUESDAY (2nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (3rd).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.).

THURSDAY (4th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M).

FRIDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.).

SATURDAY (6th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospital operations are performed daily.

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THE INDEX TO THE LANCET.

The Index and Title-page to Vol. II. of 1908, which was completed with the issue of Dec. 26th, were given in THE LANCET of Jan. 2nd, 1909.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan. 28th, 1909.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Jan. 22	30·33	N.E.	...	42	40	35	35	37	Overcast
,, 23	30 15	N.E.	...	38	36	33	33	35	Overcast
,, 24	30·16	E.	...	47	35	30	...	31	Cloudy
,, 25	30·35	E.	...	43	42	30	32	33	Foggy
,, 26	30 49	E.	...	47	41	32	33	34	Overcast
,, 27	30 51	E.	...	35	35	28	29	30	Foggy
,, 28	30 42	S.E.	...	32	32	29	32	32	Foggy

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